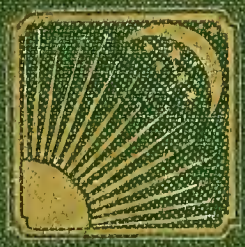
# SLEEPING for HEALTH



by
EDWIN E. BOWERS M.D.

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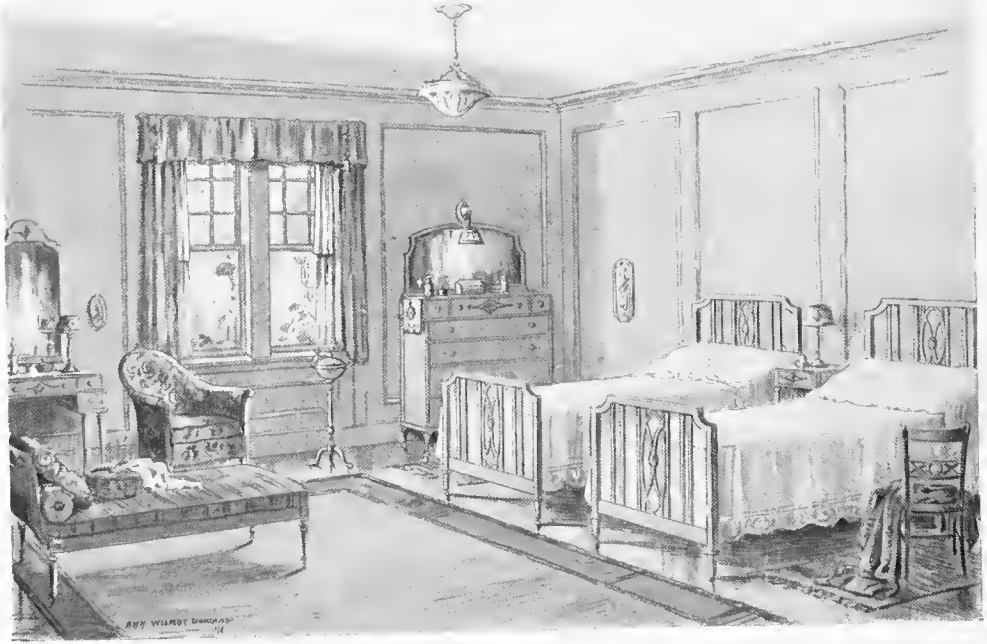

# SLEEPING *for* HEALTH

*by*

EDWIN F. BOWERS M.D.

*Author of*

"SIDE STEPPING ILL HEALTH,"
"ALCOHOL-ITS INFLUENCE ON MIND AND BODY,"
"ZONE THERAPY," ETC.

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# INTRODUCTION

FOR five hundred thousand years or more human beings have been going to sleep. But only within a few score years have they had any definite idea *why* they slept.

Even to-day, with all the data of experience, and the science that explains experience, the average man knows nothing about sleep as a *process*. And science knows but little more.

There are any number of theories to account for sleep. But there is no general acceptance of any of these theories. The contentions of one school are ridiculed by the adherents of all other schools.

So the average man, bewildered by the maze of contradictions, scuttles out of range of the contenders, composes himself, and—goes to sleep. He follows his instinct—therefore he is eternally right.

In these pages I propose to consider, not so much the speculative and theoretical aspects of sleep, as to point out certain practical aspects of the matter—things that everybody knows, but didn't know they knew until they were reminded of them.

It is hoped that the practical treatment of such an eminently practical subject as sleep may be helpful to

thousands who are a little short on this very necessary thing.

Especially if these thousands have been pursuing the uneven tenor of their ways, unconscious of the fact that by reforming certain habits and practices, both the quantity and the quality of their sleep might be improved.

For there is nothing, I am convinced, that will increase happiness, health and well-being much faster, and make them adhere more permanently, than to increase the real restfulness and constructive usefulness of sleep.

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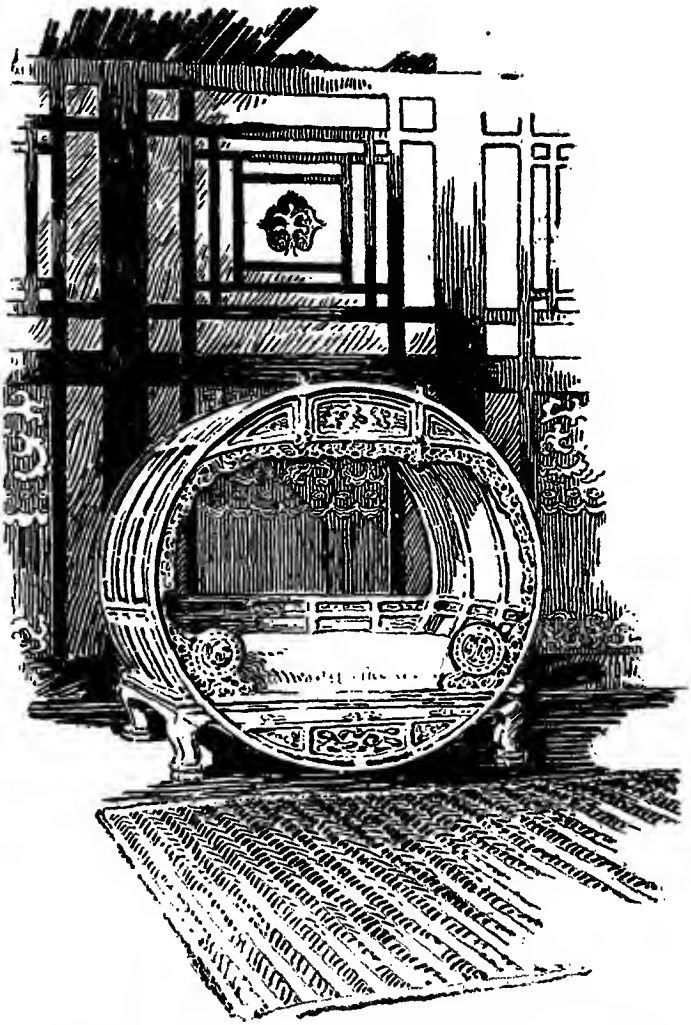
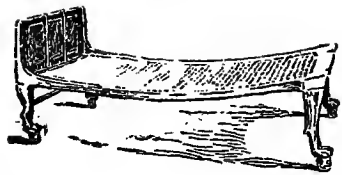


*Circular Bed of a Chinese Mandarin—reproduced by permission from photograph in the Art Collections of the New York Public Library.*



*Egyptian Bed, the frame filled in with braided flax.*

CHAPTER I

## WHY WE SLEEP

EVERY move we make causes us to spend a certain amount of vitality—every thought we think squeezes a little life out of us.

This loss is partly made up by the food we eat, the fluid we drink and the air we breathe.

But it is chiefly during sleep that the life principle flows back into us—that our loss in vitality is made good.

So wonderfully adjusted is this principle of restoration that our balance in the Bank of Life might at any time be computed by merely striking a balance between what we spend of our vitality during our waking life, and what we regain of this loss during the night—multiplied by the length of time we have kept up this pace.

The answer will be found in terms of decreased resistance to mental or physical strain; in greater sus

ceptibility to infections and all forms of disease; in lowered vitality; in increased nervous irritability; in everything that makes for a downward drag, instead of an upward push.

In golden words poets of all the ages have eulogized this marvelous reconstructive power of sleep. Physicians recognize its curative properties so clearly that it has become an unwritten law that, not even to take medicine, is a sleeping patient ever to be wakened. And this is the greatest tribute Medicine could possibly pay to the drowsy god, Somnus.

About sleep itself, and what it does, we know a great deal. But, strange as this may seem to the average man, who has always taken sleep for granted, we know very little about the cause of sleep.

True, we have any number of theories which seem to account for sleep. But all of these, on close analysis, disclose some points of weakness, some contradictions, which leave the matter pretty well up in the air. These contradictions and discrepancies furnish adherents of all the other beliefs with tough knobby clubs wherewith to fight cheerfully and enthusiastically for their own pet convictions.

But after all the pother and contention the nature and causes of sleep are still a mystery. That there are certain physical and chemical changes in the brain and body during sleep is undeniable. But that any of these

account for all the phenomena of sleep is gravely to be questioned.

The one point upon which all—scientist as well as laborer—agree is that we sleep because we are tired and sleepy, and we wake naturally when we are rested and refreshed.

But just what it is that makes us tired and sleepy, and just what happens that washes us in this bath of life are mooted questions.

One theory, rather widely accepted, is that during sleep there is a diminution in the volume and velocity of blood in the brain, and that this temporary anemia is the physical basis of sleep. This is similar to the condition one would be in while unconscious from fainting, or from any like cause.

The advocates of this theory of sleep explain insomnia as the opposite to this anemic state—alleging that during attacks of sleeplessness there is an excessive amount of blood in the brain, together with an increased blood pressure, and a more rapid flow through the blood vessels.

This theory ignores the fact that sleep, deep enough to amount to actual stupor, is frequently associated with fevers and with congestions of the membranes that cover the brain. And it is only after the application of an ice cap—or some other local measure for relieving this fullness of blood—that these sleepers

really wake up—in the sense of becoming once more rational and conscious of their surroundings.

Again, there are any number of cases of insomnia in which the pulse is slow and feeble, and the circulation sluggish as a consequence, that are relieved by a stimulant, which sends an increased supply of blood to all parts of the body—including the brain.

Those are the conditions so frequently relieved by the "night-cap," without which—or lacking some stimulant to take its place—many middle-aged individuals might lose considerably more sleep than they now do.

But even if anemia of the brain was the cause of sleep we cannot understand sleep unless we know the cause of the anemia. For this would be on a par with defining pigs as pigs—and letting it go at that.

Another theory which has won favor recently is that sleep is caused by the alteration of certain little "horns" or prolongations of the cells or units of which the brain is largely composed.

The idea is that each of these nerve cells has a number of little processes, jutting out from its side, like the feet on a "thousand-legger."

These "dendrites," as they are called, come in contact with the dendrites of their neighbor cells, and thus form a continuous chain of cells in touch with one another.

While they are continuous the current (or whatever it is that constitutes the vital stimulus) that is necessary to a state of wakefulness, flows through, naturally and harmoniously.

When the cells have been active, spending vitality in various directions, it is contended that they shrink in size. Their filaments or dendrites shrink away from one another.

Contact is broken. And the consciousness that flowed over and through them is cut off—just as the flow of water would be cut off through a garden hose if one were to step on it.

There may be some truth in this theory, but it is one of those things, as Lord Dundreary said, that "no fellow can find out." For it would be a very difficult job to cut off a head and examine the brain cells, and then put the head to sleep and see just how these cells have shrunk—if they have shrunk.

The theory recently brought forth by Professor Claparede is even more metaphysical than the shrinking-nerve-filament theory.

This is generally called the "biological theory," and contends that sleep is merely a phenomenon of nature that provides the organism with a reaction of defense to prevent fatigue.

In other words, Claparede and his followers contend that sleep is an instinct, and that we go to sleep, not

because we are tired and need to sleep, but because we can't help it.

The need for sleep did not always exist, they say, and sleep itself is not an essential to life. The instinct to sleep developed because those animals whose periods of activity were broken up by intervals of repose were favored in the struggle for existence.

They were enabled, during these periods of inactivity, to accumulate energy, and consequently display more ambition and stamina in seeking food, preserving their lives, perpetuating their species—or what not.

This, it seems, clearly implies that sleep is necessary and beneficial, and that there must naturally exist some impulse toward sleep which no highly organized animal can ignore.

The profoundly reasoned theory of Dr. Claparede might, with equal justice, be applied to the function of eating. To claim that eating is only an instinct, developed in the process of evolution for the purpose of conserving energy, is no more ridiculous than to claim that sleeping is an instinct of similar development.

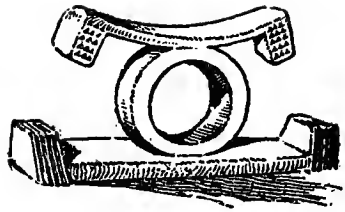
One of the most sensible and convincing of all the theories to account for sleep is the so-called "chemical theory."

This explanation concerns itself with the fact that

every contraction or expansion of any muscle cell, every nervous impulse that passes through any brain or nerve cell, causes a certain amount of breaking down of tissue in these cells.

This broken down tissue is thrown into the blood stream, to be gotten rid of through the lungs, skin, kidneys or bowels—the four great avenues of elimination. The more actively brain or muscles are used, the quicker they break down, the more rapidly the blood becomes overloaded with these toxic products, the more completely the nerves and body are poisoned by them.

During sleep the cells and tissues that produce these poisonous products are at rest—all destructive activity is suspended. At the same time there is going on within the body a constructive activity, a rebuilding of broken-down structure, a replacing of vital losses, a reinforcing of lessened defense. Which makes of sleep one of the most interesting and vital processes that a human being or any other organism can possibly engage in. These processes will be described in another chapter.



*African Head Rest.*

CHAPTER II

## AN EXPLANATION OF SLEEP

THERE is one theory to account for sleep which I do not believe has yet been advanced. At least it hasn't in any work with which I am familiar.

Nevertheless, after several years' consideration of the subject, I am convinced that this theory of mine offers a solution which is sound and eminently practical—so far as any hypothesis or theory can be deemed practical.

This theory is based upon studies in the phenomena of sleep, and is founded upon a principle that scientific men everywhere are now accepting—the principle of *vibration.*

For Sir Oliver Lodge and many of the world's greatest scientists concede that what we know as "matter" is merely a form of vibration, just as are light

and sound. In other words, matter is a "mode of motion." Matter, it is contended, is stable only so long as there is no interference with its normal rhythm. What we know as "matter" retains the characteristics peculiar to its form only while it vibrates at a rate normal to itself. If this rate of vibration could be materially retarded or increased, the substance would be molecularly altered, and cease to be "matter"—as we knew it originally.

Most scientists agree that physical phenomena—like heat, sound, light—are all different because they have a rate of vibration differing from one another.

Now, if light, sound, heat and matter are merely manifestations of a different rate of vibration, why might not this hypothesis be extended to include everything, animate or inanimate, organic or inorganic, visible or invisible? For, the electron units comprising the billions of cells making up our body, including nerve-tissues, must have an inherent rate of vibration which is normal to each of them. Vibrating below or above this rate, the cells would cease to functionate normally.

Let us suppose that a standard minimum and maximum rate of vibration represents the activity of a living healthy cell. Between these two extremes the cell functions with healthy energy and physiological vigor; the "life-force"—that unknown, and, perhaps,

unknowable principle regulating these oscillations—can manifest itself without hindrance.

As long as these conditions continue, the aggregation of cells that we call the body will be "alive" and "healthy." Between certain narrow limits of fluctuation in the vibratory rate, life and health will persist.

Perhaps this may never be mechanically demonstrable; indeed, I can conceive of no possible means of estimating the rate of vibration in a speck of protoplasm. In the case of solid bodies, this difficulty does not exist, for the reason that these substances produce a definite impact upon a diaphragm, the rate of which is measurable.

Now, as we have seen in another chapter, perhaps the best explanation of sleep is that the processes of active life cause a breaking down of the cell-structure, which loads the system with such a quantity of "fatigue toxins" that the cells are poisoned by their own end-products. During sleep these are eliminated through the lungs and pores, the liver and kidneys, and are prepared for elimination through other channels. Also, cell repair progresses much more rapidly during sleep than during the waking-hours.

But, here's an important point which has hitherto been ignored or overlooked by physiologists: We can force active elimination from all channels during the waking hours. Also, the inhalation of oxygen will

burn up the fatigue-poisons more rapidly even than they are consumed during sleep.

Yet, we know that sleep is a necessity, and that no amount of mechanical or chemical stimulation, no amount of artificial combustion of end-products, no amount of cell irritation can take its place.

We know, also, that during the active, or, perhaps more accurately, the wakeful life (for while there is life there is activity), nerve structures shrink and nerve filaments no longer interlock so as to convey the nervous impulses unimpeded to the brain. Replenishing vital force through sleep may stimulate a normal rate of vibration, and thereby equalize nutrition. This may expand the nerve-nuclei and filaments so that once more they can interlock and convey the nervous impulses.

Consider now another point connected with sleep. Physiologists contend that energy develops from the food we eat, the air we breathe, and the water we drink; while, during sleep, the ashes and clinkers are removed from the fire-box of our complicated physical machinery. Concerning the first three articles of this creed, there can be no legitimate contention. The body admittedly derives energy from food, air, and water; they are absolutely indispensable to its welfare. But to the statement that sleep merely affords a more favorable opportunity for oxidizing effete material—burn-

ing up and throwing out the slag and refuse—I take exception.

For we know the slag can be eliminated by means of forced oxygenation. This, occasionally, is done with bicycle-riders and six-day runners, who are liberally stimulated with oxygen, in order that they may better endure the horrible tortures of their stupid overwork and lack of sleep. They thus burn up their fatigue-poisons and so, for a time, postpone nature's imperious demand for sleep. But this postponement can be for a few days only. The sleep must be made up, if the athlete is not to break down or lose his mind.

Now if food, water, and air supply energy, and if we can get rid of the products of cell destruction by forced oxygenation, sweating, and other means, why should we need sleep?

May it not be that during sleep the human dynamo, the vital system, is recharging itself, is accumulating another supply of vitality? To my mind the inference is plain.

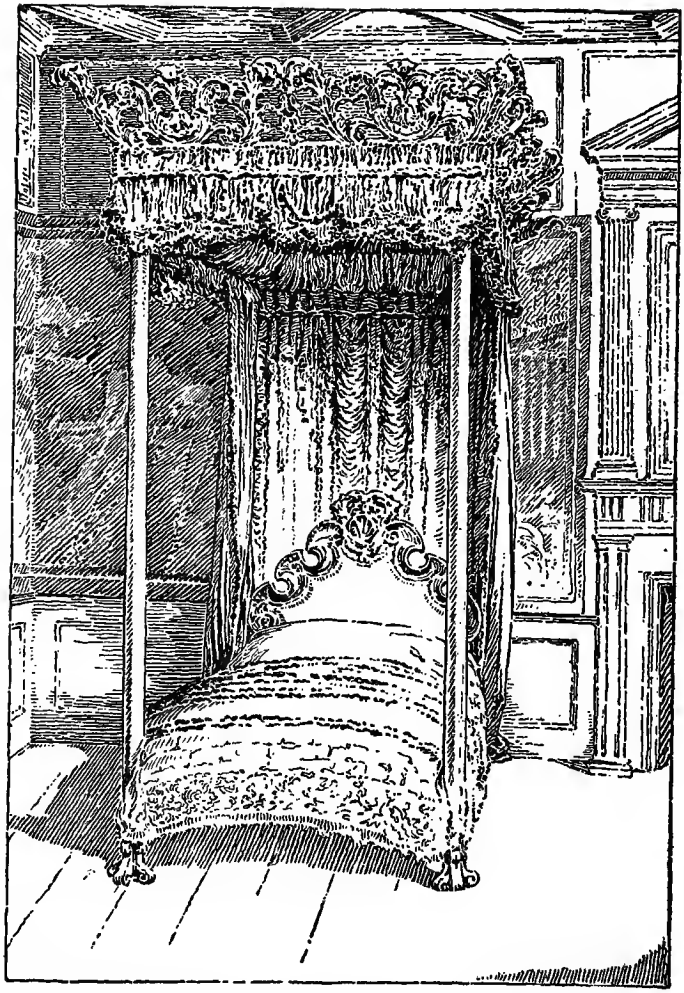
During sleep the rate of vibration is equalized—or, more accurately, normalized—by the development within the body and the absorption into the system of a definite amount of vital force. This vital force, by the way, does not seem to come under the natural laws of conservation, but may, more appropriately, be classed as a form of "cosmic energy." Therefore, re-

peated shocks upon the nerve-cells during the waking life will partly exhaust the vital force itself, so that it no longer can stimulate the normal rate of vibration.

This explanation seems more likely when we recall that the longest anyone can be kept awake without dying or becoming insane is ten days. By the expiration of this time the vibrations may have become too weak longer to furnish force for the organism, and the victim succumbs to this most horrible form of punishment.

Sleep, then, is necessary, in order to permit the vital forces to crank again the nervous engine—to replenish once more the exhausted vital forces and to permit the rate of vibration in all the billions of particles of matter comprising our nerves and bodies once more to become normal.

The more profound the sleep the more rapidly this is effected. The more thoroughly the normal rate of vibration is restored the more harmoniously and perfectly all the functions of mind and body will be carried out. And the more completely these functions are carried out the handsomer and healthier and happier we will all be.



*Bed of Mary Stuart, Queen of Scotland, now in Holyroad Palace, Edinburgh—reproduced by permission from photograph in the Art Collections of the New York Public Library.*

*Peruvian Sleeping Mat*

CHAPTER III

# WHAT SLEEP DOES

WHEN we cease theorizing upon what sleep is and consider what sleep does we leave the realms of speculation and come right down to fundamentals. We get both feet firmly planted on solid ground.

There is nothing upon which a greater number of people will agree than that sleep does certain things to us that are wonderfully beneficial and health-compelling. We may not know why they do this, but we know they do. This is out of the great advances which science has made within the present generation.

For until very recently even scientists have regarded sleep as a purely negative process. When we slept it was believed that bodily functions ceased—that we were busy doing nothing.

In fact, so sure were we that time spent in sleeping was a sort of theft of producing power, that a certain odium has crept into our conception of sleep, the term "sleepy-head" carries a definite measure of reproach. We feel a decent amount of sympathy with the farmer

who, after feeding the pigs, milking the cows, cleaning the horses, and doing a few more odds and ends of chores, greeted his new hired man sidling into the barn about 7 A. M. with, "Well, where in thunder ha' you been all forenoon?"

But the old order changeth, and our ideas change with it. The conviction is gradually gaining ground that no one ever got too much healthy natural sleep or did himself any harm by remaining in bed until he felt rested.

We are steering clear of those bewhiskered old saws that extolled the wonders and advantages of early rising to a heavy-eyed race, and we are taking a lesson from old Mother Nature in learning to follow our instincts. We are finding out that when we do follow these natural impulses always we are right. And sooner or later science wakes up, rubs its eyes, says "heigh-ho" a few times, and then corroborates what our instincts have always taught us.

We now know that sleep, far from being the "death of life," is one of the most important of all living functions—the thing that makes life possible.

Instead of being a negative process it is a very positive one; instead of stopping all activities it only starts a new and tremendously important set of activities.

Sleep substitutes for the destructive processes of active life constructive measures. It reverses the

downward trend that accompanies waking life. It lifts us back to the top of that physiological toboggan down which we commenced to slide the moment we got up. It recharges the exhausted body batteries and fills the organic furnace with fresh fuel, for the "anabolic" or building-up processes are in excess of the "katabolic" or breaking-down processes during sleep.

In short, sleep, instead of being the waste of time and the necessary evil that we fatuously think we deserve medals for curtailing, is the most important thing in the world—more important even than food. For we eat to sleep, but we sleep to live.

Men have gone 63 days without food, and a week without water. But they usually die in less than 10 days if totally deprived of sleep. It is said that rarely do the victims of the Chinese torturers keep their reason after the fifth or sixth day of their enforced wakefulness.

Our own infamous "third degree" is successful for the same reason that the Chinese method of punishing grave offenders is successful. It isn't humanly possible long to withstand the torture of loss of sleep. To gain respite from the continuous brutal day and night questionings, the victim, to obtain sleep, will agree to anything and sign any sort of a confession. And some fine day, when we become really civilized,

this barbarism will go the way of the thumbscrew, the rack, and the Iron Maiden.

It is during sleep that the final transformation of food into tissue is effected—that the finished product of digestion is finally converted into new muscle, brains, blood and nerve cells.

This explains the fattening influence of sleep, and shows why the dietitian, in attempting to reduce an overly-corpulent patient to reasonable proportions, first cuts down his hours of sleep.

Loss of sleep is really a form of starvation, not to be made up by increasing the amount of food taken into the system. "Endurance racers" prove this in an interesting and convincing manner. Those engaged in six-day bicycle races and other half-witted forms of diversion eat four or five times as much food as the ordinary man. Yet the end of the contest finds them hollow-eyed and cadaverous. Loss of sleep—even more than their physical exertions—has prevented them from transforming food into tissue.

It is this positive reconstructive quality in sleep that explains why babies, whose chief business in life is to grow, spend from 16 to 18 hours out of every 24 in sleeping, a capacity which gradually diminishes as maturity is approached, until it finally settles down around the average of 9 hours.

It is the loss of this reconstructive power that ac-

counts for the short hours of sleep and the light character of the sleep of the aged. Old people do not sleep lightly and get up early because they don't need sleep, but because they can't get it. They have lost the power of reconstruction that goes with sleep—and consequently the function of sleep itself is partly abolished.

The cat-naps and dozings of old people are not true sleep. They are really little torpors due to weakness and exhaustion of the vital functions, and poisoning from faulty elimination. They foreshadow the final end of consciousness.

The deeper the sleep the quicker the recuperation, and the more effectively all the vital processes of repair are carried out. The lighter and more disturbed the sleep the slower the recuperation from fatigue and the longer it takes to effect repair.

This explains the differences in the quality of sleep, something that everyone has noted. It explains why sometimes a little sleep of an hour or two under conditions of complete relaxation will accomplish more actual reconstruction than a whole night's restless, dream-racked sleep.

It also explains why some vigorous individuals, who sleep deeply and whole-heartedly, are able to recuperate fully and be fresh and thoroughly rested after 4 or 5 hours' sleep. While others who sleep "light," with one

eye always open for dangers that creep out of their atavistic memories or their active imaginations, require 9 or 10 hours, or even 12 or 13 hours, to accomplish even less.

Indeed, these exceptional individuals who for years on end have been able to do a tremendous amount of work on 4 or 5 hours' sleep nightly, have set a pace which has been distinctly injurious to the race as a whole. Their iniquitous example has established false standards, until it has become almost a reproach to be a 10-hour-a-day sleeper.

Morbid conditions, such as the drowsiness, or the unconsciousness of fever and other abnormal states, must not be confused with true sleep. These are merely manifestations of systemic poisoning. In no sense are they reconstructive processes.

A victim of typhoid fever, for instance, may lie in what seems to be a sleep for 2 weeks, and finally awake to real consciousness with a loss of a score or two pounds in weight, and as "limp as a dishrag." In all this time he may have had little real sleep.

The unconsciousness produced by taking hypnotic drugs is of somewhat similar character and is not to be confounded with true reconstructive sleep.

True reconstructive sleep also restores the oxygen balance in the tissues. This has a most important bearing upon our state of health.

During the day the brain cells use up more oxygen than can be supplied them through the blood and the lungs. This oxygen starvation, to which the cells are subjected, is one of the things that helps bring the unconsciousness of sleep.

During sleep more oxygen is taken into the system than is spent. After a certain period of time—depending upon one's lung capacity and the depth of breathing, the freshness of the sleeping chamber, and the number of red cells in the blood to carry oxygen to the tissues—for this is the only way oxygen is conveyed through the body—the oxygen loss is made up the balance is restored.

The matter works itself out on something like this basis. During each 24 hours, the total outgo and intake of oxygen is 60% given off, as against only 40% taken in. During the sleeping hours, nearly 60% of oxygen is taken in, as against 40% given off.

So, during active making life the body spends 20 to 40% more oxygen than it takes in, while during sleep it reverses these figures and absorbs 20 to 40% more oxygen than it gives off.

Actually, the sleep period represents the time required to restore the oxygen balance in the tissues, recharge the organic batteries, build up the broken down tissue, and oxidize and otherwise get rid of accumulated fatigue poisons.

From which it will be seen that to calculate how long sleep should last is the simplest thing in the world.

The answer is "until all these processes are completed." And the only one who knows the answer is the sleeper himself. When you're rested you'll get up.

If you don't feel rested after a decent interval of sleep it may be because you've been trying to sleep in a bed that creaks or rattles ever so little, and doesn't let you relax. This keeps the nerves on edge, and doesn't permit real restful slumber. Another reason for light unrefreshing sleep is lack of oxygen. Your bedroom may be stuffy and ill-ventilated. Or you may be anemic, run down and debilitated—and should see a doctor.

There is also a diminution in the amount of heat produced during sleep, which explains why we need more covering at night than during our active life. This decreased production of heat is largely accounted for by the quiet condition of the muscles. But it also indicates diminished tissue changes throughout the body. In very profound sleep this temperature reduction may amount to as high as from .2° to .6° Fahrenheit.

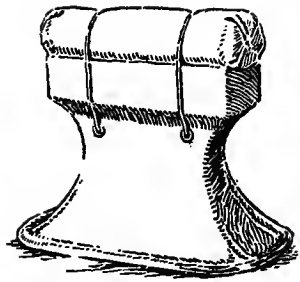
To spend more energy—especially nervous energy—in a day than one can restore in a night's sleep is to be headed for physical bankruptcy. Even the loss of

one night's sleep effects the nervous system of many. It causes sleepiness and mental irritability. Food doesn't digest so well. There is a general lack of "punch" that usually takes more than a good night's sleep to build back.

Modern conditions, with their anxieties, cares and hurries, are causing much nervous instability—directly traceable to lack of proper sleep. Never before was there a time when people needed to sleep so long and so "hard" in order to build up vitality wasted in our intensive methods of living than right now.

The man who continuously loses in the quantity of the sleep he requires is laboring under a handicap that will diminish his chances of success in life. The woman who habitually is disturbed in her rest, and in its duration, will make a failure of her children.

We need all the sound, restful, refreshing sleep we can get. Sleep builds health—health brings wealth, beauty, and happiness.



*Padded Head Rest from Japan.*

CHAPTER IV

## HOW MUCH IS "ENOUGH SLEEP"?

MOST of us think of the up-and-doing chap as an aggressive, fighting-jawed individual who arises early enough every morning to wake the robins up for breakfast. Always we think of a hero as a lithe young fellow who gets along on a minimum amount of sleep.

All our asinine old proverbs pin figurative ribbons of honor upon the poor dolt who "short changes" himself on sleep to win the fatuous approbation of whomever happens to find out how saving he is with this commodity.

We have heard about Napoleon, Frederick the Great, Frederick Schiller, Charles XII., the Duke of Wellington and John Wesley so often that we have come to

believe that the greater and the more intelligent a man is the less sleep he requires.

We have accepted that toothless, doddering old precept

"Nature requires five,
Custom takes seven,
Laziness takes nine,
And wickedness eleven,"

as Gospel truth.

We figured that Virgil and Horace, Franklin and Priestley, Buffon and Parkhurst, and scores of other notables in the world of art, literature and science did their best work on a very moderate amount of sleep. Therefore, why should anyone need more?

We know that Sir Thomas Moore got up at four every morning, and was so delighted with the results of this practice that in his famous book, "Utopia," he represented all the poor inhabitants of that benighted land as getting up and attending lectures before sunrise. Think of it!

And haven't we had Mr. Edison and his "four hours sleep out of twenty-four" flaunted in our faces for the past thirty years?

Edison keeps a couch in his workroom, and sleeps when he is sleepy.—From which I strongly suspect that if all the little dozings and catnaps were added

together, it would be found that Mr. Edison takes considerably more than 4 hours out of each 24 for sleeping purposes.

Dr. Richard C. Cabot, Chief of the Medical Staff, Massachusetts General Hospital, Boston, one of the very foremost medical men of America says:

"To get the sleep one needs (which means all that one can possibly soak into one's system within 24 hours) often takes courage—the courage to refuse invitations, to invite ridicule, to seem odd and "Puritanic."

"I believe that more minor illnesses are due to lack of sleep than to any other recognizable factor. A person catches cold, gets lumbago, is constipated or headache-ridden because his vitality is below par. His physical expenditure beyond his physical income. He is chronically edging toward a breakdown."

The physiological fact about sleep is that we need all we can get, and should take all we can use.

We need have no fear of getting too much—for when we have enough we'll wake up—and we'll stay awake.

I am speaking now of healthy individuals, in hygienic surroundings, in noiseless, confidence-inspiring beds.

Those who are poisoned by bad air, alcohol, tobacco, the wrong kind of food or too much of the right kind

of food—or by any other of the things that increase the muddiness of this "muddy vesture of decay," will need more sleep than they take. And, even then, they won't have enough.

For it isn't sleep they need, but a change of habit.

So the answer to the question "How much sleep should I take?" is "all you can get." Follow your instinct. When the oxygen balance in the tissues is restored, when the fatigue poisons are eliminated or burnt up by the oxygen, and when the worn-out cells are replaced you'll wake—rested and refreshed. In fact, you wouldn't be able to sleep any more—just then —even if you wanted to.

On an average most healthy grown persons require about 9 hours' sleep in order to be thoroughly recuperated. Women should have a half an hour or an hour more than men of the same age.

But this is entirely a matter of the individual's power to recuperate, which depends largely upon the *depth* of sleep.

If the sleeping chamber is stuffy and ill-ventilated no amount of sleep is going to produce the feeling of restedness that should come from good, sound sleep taken under hygienic conditions.

Of course these hours of sleep do not apply to children. The rules governing their sleeping must be much more flexible than those applied to adults. Fast-

growing children need more sleep than those of slow growth. Children require and should get more sleep in winter than in summer. And vigorous children need less than delicate.

At a rough estimate it might be said that babies can use 15 to 18 hours out of every 24 very profitably in sleeping. This period gradually declines, until at the third year, the child requires about 12 hours. By the sixth year, if left to his own good sensible instincts, he takes about 10 hours.

Up to the 18th or 19th year this 10-hour necessity persists. Growth being by this time attained, the sleep requirements drop an hour or more, and remain there until the advent of that second childhood, age,—which reduces the period of reconstruction because the reconstructive faculty has been reduced.

To make children get up before they have had enough restful sleep to thoroughly refresh them is a foolish, health-destroying crime against the child, and an insult to Nature. There's nothing we could possibly do—unless it would be to frighten them with bed-time tales of ghosts or hobgoblins—that reacts more disastrously on the nervous systems of children or youths of either sex than to deprive them of needed sleep. And nothing that will show the seeds of future nervous instability more surely.

The best time for sleeping is that time that will

favor the greatest degree of relaxation. With most people this is some time during the hours of darkness, when there isn't so much going on to distract the senses of sight and hearing.

Just what hours should be devoted to sleeping is not as important as that there should be enough of them. The so-called "beauty sleep," achieved during the hours preceding midnight, is a fact only because it adds to the number of hours which, under ordinary conditions, we might be supposed to spend in bed. Most of us get up at about the same time every morning—no matter how early or how late we've gone to bed the night before.

So there isn't a word of truth in the hoary-headed old fable that one hour of sleep before midnight is worth any two hours after. Sleep is sleep, provided only that it is sound, restful sleep—whether we get it at 8 o'clock in the evening, 2 o'clock in the morning, or 1 o'clock the next afternoon.

It is a fact, however, that when sleeping conditions are favorable, the depth of sleep—as disclosed by the amount of noise it takes to awaken a sleeper—rapidly increases from its beginning until the beginning of the second hour, at which time the blood pressure is lowest, and the senses most deeply steeped in unconsciousness. This is the best time for burglars and night-prowling husbands to steal into the house.

After the first hour sleep diminishes in intensity until about the middle of the third hour. After which it remains at normal level until getting-up time.

There is no physiological connection between the hours of darkness and natural sleep. Most of us sleep o' nights—because it has become the custom to earn our living during the day time.

But night-watchmen, firemen, newspaper-men, and the great army who habitually turn night into day, sleep advantageously during the daylight—provided crying children, industrious street venders, and indefatigable piano students let them sleep.

True, they do sometimes become pale and anemic. But so do prisoners—and for the same reason—a lack of the vivifying power of sunlight.

That there is any health benefit from getting up early is another old wives' fable—inherited from that time when everybody was a farmer—or an ex-farmer, with bucolic inclinations, and a tendency to burn daylight instead of candles.

It may be splendid and healthful to get up at daylight, or even earlier, a few selected summer mornings, for some important purpose—such as going fishing.

But that anyone ever gained a single iota of health or energy from getting up before the sun got up on raw, foggy, marrow-congealing winter mornings, is perfectly ridiculous from every standpoint of physiol-

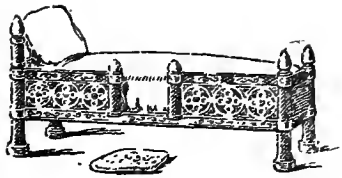
ogy and hygiene. How its perpetrators could have "gotten away with it" as long as they did must ever remain a tribute to human credulity and unreasonableness.

True, there is a certain feeling of exhilaration about getting up with the lark, composed mostly of consciousness that one is doing something praiseworthy. But, each individual, at the beginning of each working day, has only just so much work-power stored in his tissues. The sooner he exhausts this the sooner he'll have to stop work and go back and get more.

To get enough to replenish the vital forces—there's the whole philosophy of sleep in a nut shell. In this the safest of all guides is instinct, and the application of common sense to our own particular sleeping problems. And even these are continually changing with our habits and with our environment.

For sleeping is something we never improve on with practice. Notwithstanding that we all sleep every night of our lives—more or less—none of us do it any better than we did when we were infants.

Indeed, if only we can sleep "like a child" we are getting all the sleep that reasonably is coming to us—and of a quality that is a perennial source of joy and satisfaction.



*A Bed of the Ancient Goths.*

CHAPTER V

## THE FINE ART OF SLEEPING SOUNDLY

SLEEPING soundly isn't so much an art as it is a gift. The farmer lad, who complained that he never enjoyed a night's rest, "because as soon as he put his head on the pillow it was time to get up again," had this gift.

Men have slept on the red edge of the battle-field, with the deafening din of cannonading and the hideous rapping of the machine guns tearing at their ear drums. They have slept sitting in the saddle. They have even plodded stolidly—mile after mile through forced night marches—sound asleep.

In the clatter and roar of the engine room and in the rattle of unsoothing boiler shops men have slept, only to waken instantly when the slightest change in the character of the noises told their listening souls that something had gone wrong—something that required their waking attention.

I have even known very sound sleepers to get a little sleep after the electric riveter on the building in course of erection across the way started to work in the morning—but not often.

Yet one of the strangest things in connection with these noises is that they break sleep more often when they stop than when they are active.

Mark Twain, when he lived in New York, used to wake regularly every night at 1 A. M. This was in those halcyon days when the elevated trains stopped running at 1. Mark tells in his delightful way, how he used to hire a boy to stand outside his door and beat on a tin can until he could get to sleep again—tapering the noise off gradually so as not to awaken him.

And we all know that stirring story of the

"Old lady who lived by the shore,
Who at length got so used to the roar,
That she never could sleep unless someone would keep
A-pounding away at the door."

Nurses and doctors learn to sleep through all sorts of noises that do not concern their patient, only to waken instantly if he should turn in bed, or sigh, or even change the character of his respiration.

Country people visiting the city have a difficult job wooing Morpheus while the street noises are blasting away at unconsciousness. We urbanites have an equally difficult task getting sleep while bull-frogs are croak-

ing, or while a million locusts are industriously sawing away on their strident abdominal fiddles.

It's a matter of the mind and not of the senses. For familiarity with the usual sounds renders us insensible to them.

Read the beautiful apostrophe to sleep that the Bard puts into the mouth of Henry IV.—possibly the most wonderful summing up of the subject in any language, —in which he concludes that "uneasy lies the head that wears a crown."

This same uneasiness applies to every head that is stuffed with care, worries and responsibilities. It is the crux of that perplexing problem that make us re-echo the conclusion of the canny Scotch doctor in Macbeth, "Therein the patient must minister to himself."

It is interesting to note also that even the well-being of animals is subject to their mental reaction toward sleep. Domesticated animals become dangerous when their sleep is disturbed. Cows fall off in their yield of milk, hens curtail their egg output, and even sheep and pigs refuse to fatten.

The myriad-minded Shakespeare recognized again this reaction of sleep towards trustworthy contentment when he made Caesar say;

"Let me have men about me that are fat
Sleek-headed men, and such as sleep o' nights,

Yond' Cassius hath a lean and hungry look—
Such men are dangerous."

So, the mental condition has a powerful influence upon the function and the quality of sleep. This, in turn, depends largely upon one's ability to put the objective mind in a quiescent condition, and give the job of running things over to the care of the subconscious mind. The "objective mind," it will be remembered, is that mind which takes note of everything that happens to us when we are awake, getting all its impressions through the avenues of sight, smell, hearing, touch and taste.

The subjective or subconscious mind is that mind—or that part of our mind—in which are pigeon-holed all the impressions that the objective mind gathers in its busy experience. It is the storehouse of memory.

But, in addition, the subconscious mind exercises control over all our "involuntary activities." It governs and regulates the beating of the heart, the inhalation and exhalation of air, the digestion and assimilation of food. All the "vegetative processes" are under its control. The subconscious mind never sleeps. It is always "on the job"—day and night.

This is the part of our mind that wakes some of us—like an alarm clock—on the precise hour we had planned to get up, and that solves the perplexing problem for us while we sleep.

Sometimes it even gets its owner up in the middle of the night and parades him all over the neighborhood in his pajamas; or makes him write books that he would never otherwise think of writing—as we shall see in Chapter 8.

The confidence that one will sleep soundly and wake rested and refreshed is frequently stimulated by the influence of suggestion on the subjective mind—just as the fear that we will lie awake all night begets the thing we feared.

Our Christian Science and mental healer friends have put salt on the tail of a big idea in this connection. So it's good science and good psychology to suggest to yourself just before dropping off to sleep "I shall sleep soundly all night, and awake rested and refreshed in the morning."

I have known several instances in which this auto-suggestion worked beneficial results in people who lacked nervous poise, or who suffered from some of the manifold symptoms caused by an unstable or irritable condition of the nervous system.

The improvement is almost immediately apparent, and it is even more pronounced with repetition and practice.

The influence of this suggestion is even more marked if the suggestion be given by another individual, while the party of the first part is apparently sound asleep.

In this way, merely by talking in a loud, but positive tone of voice, mothers have cured their children of habits of inattention or disobedience. They have deepened the child's sleep, broken up recurrent "night terrors"—even cured bed-wetting.

In fact, the mother can implant almost any suggestions she chooses in that tired sleeping brain—with not the slightest possibility of ever doing harm—just as could the most learned and enthusiastic nerve specialist. And there is no expense attached; so mothers everywhere can give these suggestions and then pocket the medical fees they would otherwise have to pay out for these hypnoidal treatments.

If sleep be broken frequently not only the health but also the courage—the morale—of a man—or an army of men—will suffer.

It was in this way that Toussaint L'Ouverture, the Commander in Chief of the Haytian troops, broke up the predatory ambitions of the first Napoleon in the Haytian struggle for independence.

The wiley negro, considered by many authorities equal to Hannibal in strategy, with his tatterdemalion handful of troops, could not venture a pitched battle with Napoleon's veterans. But he could keep them awake. And he did.

So as soon as the French troops got to sleep at night,

Toussaint made a feint of attacking them—getting them all up and under arms.

Keeping this up night after night—and several times a night when necessary—within a few weeks Napoleon's army of 30,000 veteran troops, without a single engagement in the field, was reduced to less than 5,000 effectives. All the others were either dead or ill of causes induced mainly, if not wholly, by lack of sleep.

The huge death rate of the French army in the disastrous retreat from Moscow was due to similar harassing tactics on the part of the Russian cavalrymen.

In fact, Waterloo itself was the result of Napoleon's muddy-mindedness and depleted vigor—brought about by lack of the proper amount and the proper quality of sleep.

This moves me to write here something that lies very close to my heart—something respecting our own dear boys—and their gallant Allies—fighting iron oppression in those Hun-ravaged lands across the sea.

We have been told that "an army fights on its belly" —meaning that a well-fed army is a vigorous, courageous army.

This is true in one respect. But don't forget the 6-day bicycle rider—starving because of lack of sleep.

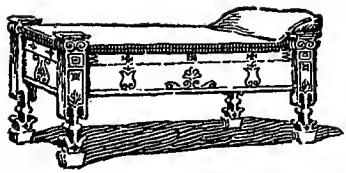
I believe, and scientific men everywhere are coming to this same conclusion, that it is almost as important,

in maintaining stamina and the iron will to endure, that an army be well bedded as that it be adequately fed.

I believe that were the splendid chaps, spending their fine energy like dross on all our fronts, to be taken into billets as often as was consistent with military exigencies, and given a chance to recoup spent energy in comfortable, substantial, sleep-inspiring beds—not canvas cots or straw "shake downs"—it would increase their efficiency at least 25%. Which is equivalent to putting an additional million or more men as reinforcements to the millions we already have on the Allied fronts. Also it would put a quality of "punch" and "follow up" into their efforts when they returned to duty that would make itself felt—in a big and important military way.

For, in the last analysis, other factors being relatively equal, battles are fought, not with bullets, but with nerves. The army with the steadiest, staunchest, most enduring quality of nerve is the army that will win. And as a nerve tonic there's nothing on earth that ever has or ever will equal a rest-bringing, nerve-building bed.

*"We can be sure, however, that 'Good night and pleasant dreams' has a deeper significance than most of us realise. For a sleep with pleasant dreams is beneficial—like a pleasant visit from a friend."*



*A Couch of Classic Greece.*

CHAPTER VI

## DREAMS AND THEIR CAUSES

THAT we are "Such stuff as dreams are made of, and our little life is rounded with a sleep" is good poetry. But it isn't good physiology. For chemistry tells us just what we are made of. But how dreams are made is still somewhat speculative.

Of one thing we are quite certain. The sub-conscious mind is active all the time—weaving the tapestry of intricate fantasy. When we sleep lightly enough to remember the pattern of this tapestry we may be said to dream. When we don't remember the impressions we say we haven't dreamed.

Yet those who watch even the soundest sleeper may occasionally see his lips moving in some deep-sleep exploration. Or catch, in the wrinkling of his brow, some sense of that fitful gust of thought that is blowing across the fertile fields of his mind. Of this the

dreamer will have no waking consciousness. Yet we know he has been dreaming. And under hypnotic influence he can frequently be made to remember the substance of his dream.

Also, the researches of such men as Sigmund Freud, Pierre Janet, Morton Prince and Havelock Ellis have opened new vistas to us in this wonderful world of dreams. These men have shown us that there is a certain order and reason in dreams, and that, if we analyze them closely, they have a curious foundation of stability. They are, in part, the imaginary fulfilment of desires and wishes that lurk deep in the soul.

Indeed, the interpretation of dreams by psychoanalysis,—or soulanalysis, as it is called,—has developed an entirely new method of explaining dreams and of elucidating causes for many obscure nervous conditions. And, what is more, it has enabled modern nerve specialists to cure many hitherto incurable nervous and mental conditions. By finding out, through interpreting the symbolism of dreams, the thing that caused them, and by explaining or suggesting these things away—they have removed at one fell swoop, the dreams, the cause of the dreams, and the organic or mental effects of the dreams.

Superficially considered, the dream world is a topsy-turvy world, in which gods and griffons, gargoyles and genii perambulate cheek by jowl. It's "Alice in

Wonderland" mixed with Plato's "Dialogues"—the Brussels sprouts we had for dinner crossed with a strain of Liberty Loan rally.

And yet, in all this apparent nonsense, there is a structure of logic—not, of course, according to the translation of the Gypsy dream-book, or some other hocus-pocus of credulous lore—but according to scientific interpretation.

Take, for example, a bizarre dream narrated by H. Addington Bruce, in one of his interesting works on psychology. At least 20 times during a period of six months, Bruce dreamed that a cat was clawing at his throat. The fury of the feline's attack was so great that it invariably awakened the sleeper.

Finally, one day, the accident of a heavy cold, settling in his throat, sent Bruce to a specialist. Examination there disclosed the presence of a growth requiring immediate operation. After the removal of the growth Bruce was never again visited by his nocturnal feline marauder.

He had suffered no pain, not even inconvenience, from the growth in his throat. He was never consciously aware of its presence. But unquestionably it had given rise to sensations, slight though they were, which had made sufficient impression upon his sleeping consciousness to start it into activity.

This activity took the form of the recurring cat-

clawing dream—a quite sensible device on the part of Dr. Brucé's sub-conscious mind for getting its message across.

In this same way it has been proved that certain maladies of a slowly progressive nature—tuberculosis, cancer, some forms of heart disease, or ulcer of the stomach—have disclosed their presence in some symbolical dream—such as dreams of oppression and smothering (although usually these have a very common and easily correctible source, as we shall see in Chapter 7), climbing up interminable flights of stairs, mice gnawing at the abdomen, and other disquieting mental visitations.

So, if you are one of those who have the same disquieting dream, over and over again, always referable to some particular part of the body, it might be worth while to drop in and have a good doctor look you over sometime. If there is something developing that your soul is trying to tell you about in a dream, you'll know it in ample time to cure it—or to cut it out. If there isn't there is no harm done, and you will have been "playing safe" on the proposition anyhow.

Dr. Coriat and Dr. Boris Sidis, of Boston, Dr. Brill, of New York and other pupils of Prof. Freud, have detailed numbers of instances in which the "dissection" of dreams and the interpretation of their symbolism has been instrumental in restoring to health hitherto

incurable cases of nervous disease and hysteria—some of them bordering almost upon mania.

The method of "tapping the sub-conscious," or dragging these ingrowing memories to the surface, is most interesting. It consists in piecing together the data of dreams or the almost-forgotten impressions that flit through the mind while the patient is in a thoroughly relaxed condition, and then tracing them to some central incident of origin.

This will usually be found to be some emotional disturbance of a distressing character—or some impulse or desire which was, or is, continually repressed, or inhibited, but which persists in bobbing up most obstreperously during the sub-conscious state.

Sometimes the central impression is only related by "free association" with the real thing—a part of the skein of thought which must be untangled to get at the nub of the matter.

The most satisfactory feature of the practice of psychoanalysis is that, the source of the trouble once disclosed, the trouble itself vanishes into thin air—like the hobgoblin in the corner of the room, which, on investigation, we find is only a coat hung over the back of a chair.

A characteristic case of this nature is reported by Dr. Brill. The patient was an Austrian woman, who had had periodical attacks of nervousness, depression,

anxiety, and insomnia. These attacks came on about once a year, and usually lasted two or three months.

Several eminent specialists had pronounced this patient insane. Dr. Brill, however, was convinced that this was a case of mental repression,—probably of sexual origin—a typical case for psychoanalysis—and urged this patient to tell him about her dreams.

After some minutes she recalled a dream. It was about a runaway horse, which bit her on the hand when she put up her arm to save herself from being knocked down by the vicious animal.

Tested by Dr. Freud's method of "free association" it was a most illuminating dream. For, asked to remember what occurred to her in connection with this horse, she said it suggested to her the government-breeding station near which she used to live in Austria.

Other associations followed, all suggested by her life in Austria. Finally, one idea connecting with another, she was suddenly reminded of a fright she received from a mouse which ran under her bed a few nights before she started for America.

This, in turn, brought up the fact that she had made an unsuccessful attempt to sell a number of feather beds which she very wisely had decided not to take with her.

"I also remember"—she went on, then hesitated, blushed and went silent.

"Please go on," said Dr. Brill.

"But what's the use? This is all nonsense—leading nowhere."

Dr. Brill was insistent, however.

Finally, with great emotion and much embarrassment, the patient told the physician of a long-forgotten memory of a man who had come to bargain with her for the feather beds.

She described him as an impudent and insulting individual, and—after much urging—confessed that he had attempted to attack her—but was driven away by her screams for help.

The significant thing about the case, however, is that, once having gotten this matter "out of her system" she had exorcised the evil spirit of repressed fear which was causing her all her nervous troubles—for never again was she visited by her spells of depression, nervousness, anxiety and insomnia.

And so, in this way, dream analysis—in the scientific, not the old woman's way—may prove of great help in clearing up and removing the results of emotional shock—especially the emotional shocks of early childhood.

The facts disclosed by these studies should impress parents with the importance of safeguarding their children from fright and from all mental influences which

tend to shock the mind during the impressionable years of youth.

Perhaps the chief drawbacks attached to this practice of soulanalysis by physicians are, first, that they tend to make a nervous, hysterical patient too introspective —too intent on seeing "what makes the wheels go 'round."

The patient is sometimes likely to magnify his own impressions and to place undue emphasis on something that may be unimportant or merely incidental.

And, next, it tends to make a physician careless in seeking out organic or functional causes for nervous disturbances, which, if removed, would remove the disturbances themselves.

That there are also certain marvelous faculties of the mind exhibited during dreams is now admitted by most of the world's leading scientists. Of such a character are the interesting cases described in Chapter 9.

In this connection will be recalled also the dream exploits of Robert Louis Stevenson, who obtained through dreams the plots for some of his most wonderful stories—including that fantastic and hair-raising tale, "Dr. Jekyll and Mr. Hyde."

The weird and beautiful "Kubla Khan," of Coleridge, in which the woman wailed so blood-curdlingly for her demon lover, is also the product of a dream. And everyone remembers the bargain which Tartini

drove with the devil for the sale of his soul, and how old Tartini got up and wrote out the "Devil's Sonata" after the genial Beelzebub had played it for him on his fiddle—in a dream.

Then there is Prof. Hilprecht's dream solution of a most puzzling problem in archeology, Cuvier's restoration of a fossil specimen, and thousands of instances in which the hiding place of lost articles has been disclosed in a dream.

The Society for Psychical Research has authenticated hundreds of cases in which dreaming girls have seen their future husbands—husbands whom they never yet had laid bodily eyes upon, and of dreamers who foretold the day and the hour of their death, who saw events that were transpiring in distant countries, as did the marvelous Swedenborg, most wonderful of all dreamers.

So universal are these fascinating and mysterious experiences that perhaps there is hardly a family to whom has not come some most peculiar and unusual manifestation—first outlined in the dream of some of its members.

I remember that my own mother has accurately foretold at least two deaths of relatives living at a great distance. In one instance the letter announcing the death of her father in Ireland was not received until two weeks after she had been told by her sleeping

mind (or perhaps her father himself told her sleeping mind) of his passing over.

Another relative invariably foretold every misfortune and every business reverse by a dream of negroes. He never could say just what form the reverse would take—and so was not able to guard against it. But he could safely wage that every time he had a dream in which a negro figured, he was "in for it"—*somehow* or other.

There are too many hundred thousands of these human experiences in every part of the world, and throughout all the pages of history, to warrant their dismissal as mere coincidences. But their consideration takes us far into the realms of psychic research. And this is not within the scope of our present study into the functions of sleep.

We can be sure, however, that "Good night and pleasant dreams" has a deeper significance than most of us realize. For a sleep with pleasant dreams is beneficial—like a pleasant visit from a friend.

We know that if the emotions are pleasantly stimulated by dreams the digestion and assimilation of food proceeds more favorably. All the vegetative processes are carried on more harmoniously. Pleasant dreams create a feeling of restfulness and well-being that result in an improved state of mind and body.

Bad dreams and nightmares produce exactly the op-

posite result. They serve to retard the digestion and absorption of food products, and inhibit the normal activities of the vegetative functions. They leave the brain depressed and irritable. They throw a wet blanket over the wholesome and happy emotions that should leave the sleeper with fresh vigor and an eagerness for the day's work.

So anything and everything that conduces either to dreamlessness or to pleasant dreams makes for health and physical resiliency. And everything that disturbs sleep or that causes unpleasant dreams lowers our vitality, depletes our store of vital energy, and tends to make our miserable lives shorter and decidedly more miserable.

## Chapter VII

# THE TERROR THAT COMES IN THE NIGHT

HE wisest man that ever lived once said, "He jests at scars who never felt a wound." In similar fashion we make light of the terror that comes in the dark to those more delicately organized and more susceptible to external and internal impression than we are.

And yet perhaps we ourselves may be entitled to little or no credit for our freedom from nightmares and frights, or for our fearlessness in the creaky, whispering dark.

The credit, if due at all, should go in large measure to certain steady-nerved, strong-willed ancestors, who bequeathed us a nervous system and a set of racial memories that fortify us against fright, under conditions where others might melt with terror.

Indeed, it is now conceded that the most serious and stubborn affections that nerve specialists are called upon to treat are those caused by the fears and frights of ancestors. Not immediate ancestors, although these are responsible in various ways for considerable of our nervous instability, but of our monkey-like progeni-

tors—our great-grandfathers, ten thousand times removed—back in the flying-lizard, giant-fern period.

This may seem difficult to believe. But scientists who have devoted a lifetime to the study now conclude that much unexplained nervous apprehension, and many intuitive and instinctive fears are inherited from our forebears of the ancient world.

The biologic cell-stuff, or the soul-stuff, whichever it is, that they pass down to us, contains the essence of that thing, or that state of mind, that makes children and many adults fear the dark, or high places, or snakes, or mice, or running water, or thunderstorms, or being left alone, or mysterious forests, or of being tied up, or of strangers, or fire, or of a hundred other things equally absurd in this protected age.

And these instinctive fears are by no means "imaginary," or so many rugged-minded men and women would have us believe. On the contrary, they are as tangible and definite as is a case of mumps or a broken leg—and they cause infinitely more suffering than either.

Take the fear of darkness, for example. Out of the blackness of a prehistoric night there creeps a

great jungle monster. With a roar that freezes the blood he springs among the sleeping clan, breaks the back of the nearest with a blow, crunches the body in his great jaws, and snarlingly drags it into the forest.

There, for hours, the terror-stricken folk, who have sought temporary shelter in the branches of the trees, shudder to the carnivore's bloody feast.

The nervous systems of these ape-like ancestors were shocked with an indelibly implanted horror of the dark and its dangers. Is it any wonder that the survivors of these nightly catastrophes transmitted to their children, as part of the inheritance of the race, the instinct to dread darkness, and to fear the mysterious shadowy recesses of the forest, where sudden death lurked in the undergrowth?

Is it to be wondered that the deep caves that might harbor ferocious bears, or the black gorges and clefts that were likely to conceal the saber-toothed tiger, struck the folk over the heart and caused the thick reddish-brown hair of their heads to stand on end?

Now, children are nearer their ancestors than we are. Reason, experience, the shame of acknowledging "groundless" terrors, and the courage that comes from meeting and overcoming obstacles are not yet theirs.

And so they see bears on the black stairs, leering faces peering from shadowy corners, and shapes of dread in familiar daytime objects. The thing that

might be under the bed, or in the cellar, or in the murky attic closet, waiting to spring out upon them, is to them as real as is George Washington or the Desert of Sahara to us.

And they can no more help being afraid of this old racial memory than we can help fearing death or the tax-gatherer, or getting run over.

Practically every child in the world dreads the dark. Even the best-born, the healthiest, and the most carefully shielded are liable to sudden stampedes of fear following some suggestion that overwhelms control, and that may actually cause deep-seated or even permanent nervous disorder.

This fear of darkness is by no means confined to children. Many adults have it to an extraordinary degree. If you don't believe this, just have yourself locked in to the blackness of a solitary confinement cell for a half hour or so, as I did on the old Australian prison ship that toured these shores a few years ago.

I confess, without shame, that I had to keep telling myself that my friends would let me out of this tomb when they got ready.

Otherwise I should have yielded to an almost irresistible impulse to kick on that door and to shriek at the top of my lungs. Which, so I was afterwards informed, is exactly the way that nine out of ten behave under these circumstances. The fear of "closeness"

complicates the fear of darkness in this instance and intensifies the dread. Our soul-stuff knows that closeness is dangerous, and that to be suddenly confronted in a narrow place with some peril which there isn't room to avoid or opportunity to run away from, spells disaster.

This knowledge our half-animal forefathers have transmitted through all the ages that separate them from us.

So, tangled in the woof of inherited instinct are those racial dreads, that only time and education and the strong force of example can obliterate—or more properly subjugate—for they are, in my judgment, never obliterated.

Almost as unreasoning as the dread of darkness is the horror of high places. The average person who has not become immured to it by experience could not be hired for love or money to walk a girder on the twentieth story, or to balance himself on the coping of even a moderately high building.

Some there are who cannot look down a deep well or a subway excavation. Others suffer terribly when they have to go up in elevators, or when they cross high bridges or ravines.

Some cannot even watch a steeple-jack at work, or see some reckless but debonnaire artisan sliding gayly down a sky-scraping rope, without getting seasick.

Others are frightened, not so much by the height itself as by an almost irresistable desire to jump off when they are up there.

Of course the slight changes in blood pressure which come with the rise above the sea level, the feeling of insecurity, the "newness" of the situation, and the rioting imagination bodying forth the consequences of a "spill," all have their effects upon the body and upon the mind.

But back of all these things is that instinctive "gravity fear," transmitted to us by ancestors who didn't fall, but who saw clearly what happened to others who did.

And so, even the tiniest infants, too young to know danger, or to have developed any imagination, are sometimes "frightened stiff" at being lifted toward the ceiling or in dropping to the lower floor in an elevator.

Then there is the fear of snakes and of crawling things that possesses ninety-nine out of every one hundred of us. What is there about a harmless little garter snake or a green lizard that should create a panic in women and a murder-lust in men?

There is this about it: In the tropical regions that were the first home of the race, snakes were almost uniformly venomous. Our geologic ancestors came to

know that death sprang upon them from the fangs of serpents.

Thus they came to dread snakes and all creeping and crawling things that suggested snakes. And so they implanted the fear of crawling things in all their children—even unto the ten-thousandth generation.

Now we see why nightmares are so very real—to the one who is ridden by them. And why they so frequently hark back to the horrors that infest the dark, to being smothered by closeness, to falling from tremendous heights, to snakes and all manner of wall-eyed crawling things, and to various other matters in which the individual himself may have no experience, but with which his soul is thoroughly well acquainted.

Our objective or reasoning mind, being asleep, the subconscious mind takes the reins and jumps the sleeper over the hurdles of horrible experiences.

Not content with plaguing us with the frights and fears of ancestral memories, it even manufactures new ones, made up of a most curious and heterogeneous hodge-podge of everything we have heard, smelled, seen, tasted, touched or talked about—generally mixed with some physical sensation that touches the thing off.

For instance, the slipping down of the blankets may start an Arctic exploration expedition with a whole train of icebergs, seals, walruses, Eskimos, and everything that properly belongs to our conception of what

Peary or Nansen must have come through in order to get somewhere near the pole. Or even such a trivial accident as our poking a couple of toes from under the covers on a cold night may produce a dreadfully embarrassing dream, in which we try to slip unobserved through the crowd on the corner of 42nd Street and Fifth Avenue, dressed in a costume that would make décolleté look like being wrapped in feather beds.

Read Mercutio's beautiful and fantastic description of how dreams are started and how those so stimulated interpret this stimulus and react to it. For it's true—all but the fairies. And, since Peter Pan, I'm not so sure that they are not true, too.

Perhaps every one is familiar with the distressing dreams produced by some dietetic indiscretion—the "mince pie" or "midnight lobster" dream.

It surely is a realistic and thrilling experience, while it lasts, like the drunkard's eulogy of delirium tremens: "You ain't been nowhere, and you ain't seen nuthin', 'till you've had the 'shakes.' "

Yet that little old man with the hideous fanged mouth, who hopped up on your chest and proceeded to grow bigger and bigger and heavier and heavier, until finally, by a superhuman effort, you succeeded in unhorsing him, was only gas.

The gas-distended stomach was pushing away for dear life on the diaphragm, compressing the lungs with

all the strength of fermentative desperation. The fertile imagination furnished the remainder of the entertainment.

The night terrors of children frequently have a physical cause also. They may originate in "mouth-breathing" and in the defects of circulation which this brings about.

Some nasal obstruction, such as a twisted septum (the cartilagenous division of the nose), enlarged turbinated bones, or adenoid growths may block the nasal passages.

Every mother should closely observe her children for symptoms of these conditions. If found, they should be removed. For if they are not removed the child will develop contracted dental arches and other conditions that will prevent the circulation of lymph. Deprived of this nutritive material, the brain will be starved into sub-normality, and a child who should be keen and alert becomes a dunce.

If your child cries out in his sleep, or is subject to distressing restless dreams, see if these nasal conditions may not be a cause. If present, have them radically removed. The dangers of operation are extremely remote, while the dangers of not operating are immediate and progressive. And the little "tads" rarely outgrow them.

The "falling from a height" dream also has a phys-

ical basis of cause—when it occurs within the first 45 seconds of sleep. For scientists have shown that this form of "falling nightmare" invariably occurs during the first 45 seconds after falling asleep.

It is suggested by the general muscular relaxation that takes place when we settle down to sleep. A change in position of even the fraction of an inch, or the least little slip of the muscles, or any sudden noise that might suggest slipping or falling, is sufficient to convey the idea of a fall to the brain.

In the twinkling of an eye the brain has provided precipices, chasms, mast-heads, monuments, and divers other things for us to fall or be pushed from—and we "do the rest."

The inherited instincts of fear and the tendency of the mind to translate any unusual sound or motion into terms of danger suggests what is probably one of the most frequent of all causes of night terrors.

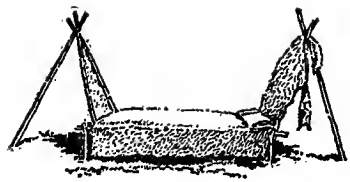
This is a creaky bed—a bed that rattles, squeaks, moans, groans or protests—audibly, or by sagging, or by any other unusual motion, when a sleeper happens to move or turn in his sleep.

The very faintest sound or the slightest motion is heard or felt by the subconscious mind. Like a flash it manufactures its dream to fit this particular soul-shock; and it repeats the process, possibly hundreds of

times a night, in response to every unusual move or sound.

This, I am convinced, is one frequent cause for nightmare, as well as for light disturbed sleep, and even for insomnia.

Therefore, a rigid, absolutely noiseless bed—one that doesn't wobble, rattle, creak or sag—will, in my opinion, do more to banish nightmare than a whole pocket full of pills. And it won't be nearly so hard on the one who has to take it, either.



*Pole-and-skin Couch of the Plains Indians.*

## Chapter VIII

# SLEEP-WALKING AND SLEEP-WORKING

THE impossible is the thing we don't believe; the incredible, the thing we have not yet seen. Both are states of mind common to the average human. That is why any account dealing with activities of the subliminal mind (that mind that works while we sleep, and at all other times) must always be bolstered up with a lot of affidavits and attestations, if it is to carry conviction. That is why the phenomena of unconscious cerebral and bodily activity have been considered, even by scientists, as old wives' tales, hardly worthy of serious investigation.

And yet, among medical reports of abnormal mental conditions, and in the proceedings of the Physical Research Society, hundreds, if not thousands, of well-authenticated cases of most extraordinary activities of

sleeping persons have been recorded. In some instances the mental feats accomplished far transcended the normal capabilities of the individual.

Such a case is the intuition—or perhaps it was the clear subconscious grasp of business detail—of a Russian banker who was addicted to the habit of getting up at night and looking over his papers while asleep. The banker had been examining the prospectus of an oil company about to be formed, in which he had planned to buy an interest. But after mature deliberation, with his objective mind (the mind we use while awake) he decided not to "take a chance."

However, a few days later, his agents told him they had followed his instructions, and had bought heavily for his account in the proposition, at the same time showing him a letter written in his handwriting, authorizing this purchase—a letter he had written while somnambulistic, and of which he had not the slightest conscious recollection. Within two years the banker had added two and a half millions of dollars to his already over-swollen account—which puts him in the championship class of sleep-walking money-makers.

But while one person does something constructive during a somnambulistic attack, a dozen do some absolutely destructive or absurdly foolish thing. Such, for instance, is the case of the English nobleman who, missing his shirts almost at the rate of one a night,

accused his valet of purloining these indispensable articles. Fortunately for all concerned, the erratic nobleman was seen the very next night stealing out in his pajamas, with his dress shirt under his arm.

Proceeding cautiously around to the back of the barn, he secured a spade which he had concealed in the shrubbery, dug a shallow grave, and buried his shirt, expeditiously and effectively. Investigation showed that all the remaining shirts had been interred in the same way.

Most actions of somnambules are of this general character—either inconsequential, destructive, or else utterly without sense or reason. Dr. John D. Quackenbos, of New York, a psychologist of international reputation, tells me of such an instance.

A young woman, well-known as a successful writer of short stories, was taking treatments by hypnotic suggestion, which materially increased her powers of concentration and quickened her imaginative faculties. Through an oversight on the part of one of the nurses she was permitted to leave for home while in a somnambulistic condition induced by hypnotic suggestion.

When she "came to" at ten o'clock the next morning, she found that a valuable diamond ring was missing. Calling on the doctor, she made known her loss, adding that she had a strong impression that she had given her much valued ring to a beggar.

Dr. Quackenbos immediately "put her down deep" in the hypnotic condition, and gave her strong suggestions to the effect that when she returned to her home she would remember where she had hidden her ring.

Within an hour she called up, exclaiming delightedly "Doctor, I've found my ring in the lining of an old muff—a muff I was going to give away to-day."

Dr. Quackenbos himself is a rare and remarkable example of constructive somnambulistic activities, for most of his rather voluminous writing is done while he is objectively sound asleep.

It is his practice to arm himself with pad and pencil on retiring. On awakening in the morning he will frequently find that, absolutely unknown to himself—using "himself" in the objective sense—he will have covered sheet after sheet of paper with a perfectly coherent essay, or with some consecutive addition to literary work he may have had under way.

In such manner was written his fascinating study—"Body and Spirit"—and in just such fashion is he now at "work" upon a new novel.

In this connection it may be interesting and helpful to know that Dr. Quackenbos believes that anyone, who will take the trouble to cultivate the faculty, can develop a psychic mental stream which will inevitably sweep ideas, impressions, and memorizations into objective consciousness. There they may be utilized in

solving business problems, and in assisting in the conception, construction, and completion of all work of a creative nature.

Dr. Quackenbos advises—and I myself have found this extremely helpful in literary work—that one should comfortably compose himself and go to sleep for an hour or more with the business problem, the story germ, or what not, firmly fixed in mind. When the objective mind relinquishes the burden of thought —in other words, when the subject goes to sleep—the subconscious mind takes the matter up and carries it forward, together with the memory impressions of the subject.

As a result, it is contended that an astonishing degree of acuity is attained, or that entire story plots are clearly revealed. This experiment may well be worth trying by anyone who has mental problems to solve, or who wishes to intensify his concentrative powers.

That the value of this practice is sub-consciously recognized is evident from the fact that many people "go home and sleep on" any problem into which enters a large element of doubt. A night's sleep clarifies the subject—frequently putting an entirely different aspect on the matter than appeared when they took it to bed the night before.

While the body and the other parts of the mind are sleeping, the ever-active sub-conscious mind figures

out the best way to handle the question under consideration.

When the sleeper awakens in the morning the subconscious mind—or soul, or whatever it is—presents its owner with a logical decision carefully reasoned out. And, what's more, most generally this decision is the correct one.

Occasionally this ego that makes our wheels go 'round, does some extraordinary thing with our body that would seem to prove the assertion that the soul has all knowledge, and that education is merely a method we employ for calling this knowledge to the surface.

Such an instance is recorded showing the unique coordination between muscle and mind in a somnambule, in which a young man, totally unable to swim in his normal waking condition, was accustomed to getting up at night two or three times a week and swimming a river two miles wide.

This young chap wasn't a fair-weather swimmer, either, for on several occasions he had pursued his favorite out-door sport during a heavy thunderstorm.

Psychologists who have investigated somewhat similar conditions insist that, were this young man to be awakened by bumping into a log or something while swimming, he would inevitably drown. For his objective mind could not transmit to his motor nervous

system the impulse toward actions with which it itself was not acquainted. Only that mind which Emerson says contains all the knowledge that memorization merely calls to the surface could guide the muscles in the co-ordinated strokes of the swimmer.

This is the same form of mental and muscular correlation that enables the somnambule to walk fearlessly, and usually with safety, upon some precarious ledge or dizzying height,—or disport himself in some terrifying situation that would paralyze with inhibition his waking brain and muscles.

While the erratic antics of the sleep-walker usually have a "happy ending" the generally accepted belief that no accident ever befalls him unless he happens to be suddenly awakened is not altogether true. Numerous deaths of sleep-walkers from accidents testify to this.

It is during these curious cataleptic states that many of the most marvelous psychic experiences occur. In their almost supernatural uncanniness they furnish most fascinating subjects for study and speculation. One such experience was given me by a friend—an eminent alienist and neurologist practicing in New York.

This was a most remarkable case of somnambulism, combined with what is termed "externalization of faculties," and other psychic powers.

The subject was a Bavarian peasant girl, simple,

good-hearted, and very ignorant. The gentleman in whose home the girl worked as a domestic was a student of psychic phenomena and hypnotist of considerable skill. He had, it seems, developed a wonderful telepathic rapport with this girl, and had brought her to his friend, the neurologist, for experimental work.

Thrown into a cataleptic state of hypnosis, the girl would inhale deep draughts from a bottle of the strongest ammonia, under the suggestion that it was perfume of roses. She chewed a strychnia tablet, perhaps the bitterest thing in the world, with gusto and relish, under the belief that it was sugar.

Blank cartridges were fired off right behind her ear, without producing a single quaver of shock appreciation. Tested as to her accuracy in telepathy, it was found that she could read her employer's every thought.

My friend, the alienist, to extend the scope of the experiment, directed that the girl—or her subliminal mind—proceed upstairs, enter a certain room (his daughter's bedroom) and describe what she saw there.

After an interval, the girl announced that she was in a bedroom, and described in detail the physical characteristics of the doctor's daughter—a little girl of eight.

Asked to count the number of chairs in the room, she announced that there were nine—two more than the number usually kept there.

Thus far the results might have been due merely to the ability of this girl to read the doctor's mind, and to describe what he well knew. But, on being asked to state what was on the mantel the girl replied, "A picture of a horse."

Now, the doctor knew for a certainty that there was not, nor never had been, a picture of a horse in his daughter's room. So leaving the subject lying on the couch, the experimenters proceeded up two flights of stairs to the room occupied by the little girl.

The mantel contained only the usual schoolgirl trifles.

"Just a clever mind-reader, after all," said the doctor. "She can't externalize her seeing faculties. She sees only what you and I have in our minds."

"Hold on," said the doctor's friend, stepping over to the mantel, and picking up the photo of a horse that was lying *flat on the shelf.*

"What's this?"

It was a photo snapshot of one of the doctor's horses, taken in the country by his little girl—a photo concerning which the doctor had not the slightest knowledge.

Returning to the doctor's study, the subject was directed to proceed to the room and to touch the girl she had described. Sound asleep, her eyes tightly closed, yet avoiding the furniture as though she were

guided by spiritual antennae, the girl arose from the operating chair on which she had been stretched out, went swiftly out of the room and up the stairs, entered the daughter's bedroom, touched her arm, and returned to her former place on the couch.

To explain these things is more difficult than to describe them. It is generally believed, however, that sleep-walking is only a form of self-induced, or auto-hypnosis, and is practically identical with the somnambulism induced by hypnotic suggestion. The suggestions usually arise in a dream. Psychologists are quite certain of this, for most frequently, by an effort of concentration, the sleep-walker can remember the dream that "started him off."

Somnambulism is most generally confined to children, or to the youthful—in other words, to those happy people who still preserve illusions. Frequently, however, it accompanies a neurotic disposition, or some nervous disturbance, such as hysteria, epilepsy, "fits," or nervous headaches. Or it may result from any great stress of soul, or mental agitation. The classical example of Lady Macbeth is an instance of this.

The sense of touch is greatly augmented during this subconscious state, although the sense of sight is usually in abeyance. The sense of pain is also suspended and innumerable bruises furnish proof that these sleep-walkers strike against furniture or otherwise

injure themselves much more freely than they are given credit for.

Altogether, these phenomena are among the most interesting and absorbing with which the medical man or the psychologist has to deal. For, working among mysterious shadows, we grope, however haltingly, at the folds of that dense veil that divides the Living from the Dead, and hides to mortal eyes the dim portals of the Unknown.

*Cup Bed of Modern Egypt—made of sun-baked mud, and used during the hot weather, and in the open as a protection against snakes and scorpions.*

CHAPTER IX

## WHY SOME PEOPLE ARE "LIGHT SLEEPERS"

SOME light sleepers are like the boy who, when asked how he felt after a certain feast of green apples, replied "I have a pain in the middle of my stomach, but the rest of me feels fine."

Outside of the fact that they are light sleepers, these folks seem to be all right. But I have yet to meet a person who has been for years a persistent light sleeper who did not have some organic or nervous defect—some little trouble that put him more or less obviously in the class of those who "enjoy poor health."

For, remember that the final conversion of food into

nutritive material is effected mostly during sleep, and that the sounder and more restful the sleep the more quickly and more effectively this transformation is effected.

The lighter and the more disturbed the sleep the longer it takes to bring about this transformation, and the more incomplete the results of the process—the quicker the machine wears out.

The onset of sleep is usually a gradual process. We don't go to sleep "all over at once." Sense after sense is extinguished, always in regular order—reserving for the last those senses most useful in warning us of danger. These are the last to go off duty and the first to report for work again.

The sense of sight, of course, precedes the others. We haven't much use for vision at night, anyhow. Few of us sleep with our eyes open—except in a figurative way.

The next sense to leave is the sense of taste. Then smell goes to sleep—although some individuals, as, for instance, foresters who must guard against forest fires —have trained this sense until it is wonderfully alert.

The next sense to depart for slumber-land is hearing. Last of all we lose the sense of touch.

This same gradual loss of tone has been measured in the muscles. We go to sleep first in our feet. The relaxation spreads up the limbs and trunk, until it

finally reaches the brain. Then we are asleep "all over." When we wake we reverse this process.

The sense of touch, being the most important of all the senses in warning us of imminent danger, is the first to awake. The quickest of all ways to waken a man is to touch him—although certain sound sleepers require to be shaken or rolled out of bed before they come back to consciousness.

The next quickest way is through the hearing—although this is difficult for some mothers to believe after they have shouted themselves hoarse trying to get Johnnie up for breakfast.

Next, a man can be aroused by some pungent odor. And finally by the sense of taste.

As a usual thing the more active we are in the daytime the more quiet we are at night. There isn't anything that will turn light sleep into deep refreshing slumber like a generous dose of work or exercise—in the open air, if possible. For a healthy, "symmetrical fatigue" is something that can't be bought. It's got to be earned. And it's well worth working for—always in moderation. Certain artificial measures, based upon a control of the circulation of blood in the brain have, from time to time, been advised for deepening sleep. All these procedures are splendid things to avoid—even though they may occasionally be sound in principle.

It is interesting to know, however, that if the brain be deprived of blood by pressing for 30 seconds the carotid arteries (which carry the blood to the head) deep sleep, or rather unconsciousness, is immediately brought about.

Similar pressure on the jugular veins (which carry the blood back from the head to the lungs) also produces loss of consciousness—but from exactly the opposite cause—congestion of blood in the brain.

The Japanese, with their almost uncanny knowledge of vulnerable centres in the body, before the discovery of anasthetics, used to employ these pressures to induce anasthesia for extracting teeth and for similar short minor operations.

They gave it up, however. For there was no way of insuring that their patient would wake up again, after they removed the pressure from his blood vessels.

There is another fetish connected with sleep which has a very one-legged foundation. This has to do with the influence of certain kinds of food in bringing about sleep.

It is pretty safe to say that no food, in itself, contains any soporofic or hypnotic quality. If any one *should* happen to cure himself of sleeplessness by eating some particular kind of food at night, it is because he has a very large and prominent bump of faith that is soothed by this idea.

As a matter of fact a whole barrel of lettuce, flanked by a bushel of onions, doesn't contain sufficient hypnotic to put a flea asleep. And the same is true of milk.

If these things "work" at all it is because, during the process of digestion, sufficient blood is withdrawn from the brain to induce the brain anemia favorable to sleep. But any other easily-digested food would do the trick equally well—or even better. For it might be less likely to ferment than onions or lettuce, and therefore less likely to cause gaseous distension—and wakefulness.

Part of the blood withdrawn from the brain is distributed through the network of capillaries under the skin. This causes the pretty rosy flush, so characteristic in healthy sleeping babies. It is also responsible for the distressing itchiness and irritation of the skin, from which many suffer in winter—especially on first retiring.

I have spoken before of the value of pure air in the sleeping chamber, but it cannot be too strongly emphasized that sound, refreshing sleep is never, under any circumstances, to be found in the same room with a lot of old carbon gases, whether they come from air that has been rebreathed a half a dozen times, or from stale tobacco smoke, or from a defective stove or flue, or from any other cause.

In fact, if the light from the early rising sun doesn't get one up before he "has his sleep out," the best place to find sound health-bringing sleep is out of doors.

It may be some comfort for light sleepers and those who require many hours of sleep in order to properly refresh themselves to know that they "are not the only ones." All great men didn't emulate the weasel in their sleeping habits.

Indeed, some of the most brilliant men, instead of calling 3 or 4 hours a night's sleep, were able to work only 2 or 3 hours out of 24.

Darwin, for all his prodigious output of creative work, was able to be at his desk only two or three hours each day. Spencer worked only four hours out of twenty-four.

And the famous philosopher, Descartes, as well as the big-brained Dr. Johnson, used frequently to lie abed until two or three in the afternoon.

Perhaps the champion of all long-distance sleepers, however—excluding Hindoo fakirs, buried alive for months, and other trance subjects—was Moivre, the French mathematician. Moivre, during his old age, used to sleep twenty hours a day, leaving only four hours for science—and everything else.

Of course, the influence of noise in lightening and otherwise disturbing sleep is obvious to everybody. Perhaps the most ubiquitous and omnipresent of all

night noises is the common or garden variety of snore. It is probably the most exasperating, irritating vocal effort that has been invented. If real justice reigned in this world it would probably be considered a justifiable cause for homicide.

There is balm in Gilead, however. The evil is correctible by the diligent application of intelligence.

For man is the only animal in the world that sleeps flat on his back with his mouth wide open. Hence the snore; for, if we stop to think but a moment, the mechanics of snoring are readily understood.

When the head is held upright, and the respiratory passages are normally aligned, snoring is impossible. When the head tilts forward there is a relaxation of some of the respiratory muscles, notably the soft palate. This membrane divides the air currents, so to speak, and under the stimulus of inspiration and expiration this membrane flaps free in the breeze—which relaxation is triumphantly proclaimed in a reverberating solo.

The cure for snoring is to breathe always through the nose. This is, perhaps, not so easy as it may sound; for, as in hay fever, in which condition almost invariably there is some abnormality in the nasal passages, the habit of snoring may depend primarily upon adenoids, enlarged turbinated bones, a twisted septum, or even an overfilled and spongy mucous membrane lining of the nose.

So, first of all, the advice of a nose and throat specialist should be sought, and if there are any nasal obstructions these should be removed.

If, after the nose is cleared, mouth breathing still persists, a piece of isinglass court plaster may be placed over the lips before retiring and the mouth thereby kept closed. In fact, it might be wise for all who have a tendency to sleep with the mouth open to adopt this simple expedient as a routine measure.

Next, the height of the pillow—for every adult should sleep with a pillow in order to maintain normal alignment of the respiratory organs and tube—should be regulated; neither too high, for this will tilt the head forward, producing relaxation, nor too low, which stretches the muscles and causes a compensatory sagging of the lower jaw.

A French specialist even advises the wearing at night of a sort of yoke, which supports the chin and prevents it from "snugging down" on the collarbone. Equally good results may follow the wearing of a bandage passed under the chin and pinned tight over the top of the head.

Next, the snorer must be discouraged from sleeping on his back. A heavy cloth bandage or towel, bound 'round the waist and tied at the back in a large, fat knot, will effectually prevent this; for the offender will have either to sleep on his side or not at all.

If even the most hardened sinner can be induced to follow this line of treatment consistently, his cure is almost certain.

Also, too, the blighting influence or any sort of pain upon sleep is apparent to everyone.

The disturbing influence of attempting to share a bed with another sleeper is another common cause of light sleep. This will be treated fully in Chapter 14.

Perhaps the chief reason why some people are light sleepers is because they do not relax, either from disturbance—within or outside of them—or, quite frequently, because of slight noises of a creaky bed or a slipping spring.

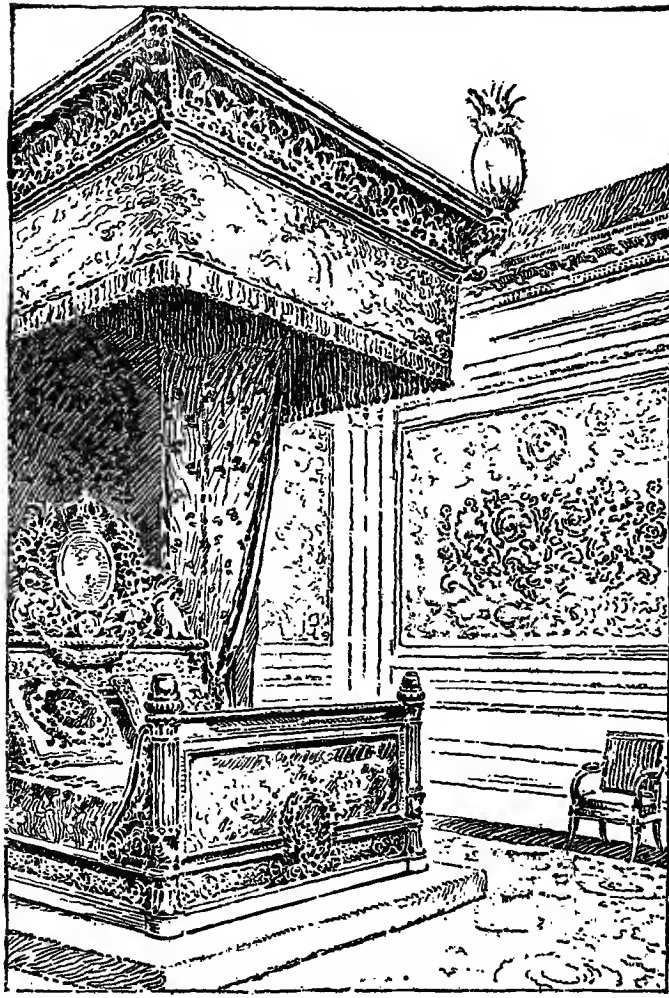
Dr. I. H. Coriat, in the *Journal of Abnormal Psychology,* Vol. VI, page 329-367, points out that—

"When we relax, the motor phenomena become lessened, and this tends to produce drowsiness and finally sleep, due to a diminution of peripheral stimuli from the muscles to the brain, produced by the act of muscular relaxation."

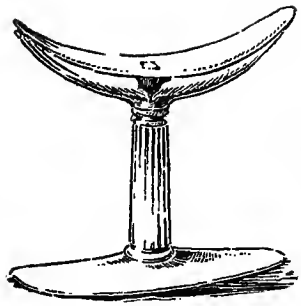
In other words, the Doctor contends that the brain is kept awake by the messages it is constantly receiving from tense muscles, and that when the muscles finally relax and stop sending their irritating impulses to the brain, we go to sleep—and not before.

So every one who sleeps lightly and brokenly owes it

as a duty to himself and his long-suffering family to find out what's the matter with him or his bed-room equipment—and reform it. For that way safety lies.



*State Bed of Louis XVIII., last Bourbon King of France—reproduced by permission from a photograph in the Art Collections of the New York Public Library.*



*Egyptian Head Rest of Ivory.*

CHAPTER X

## WHAT BAD SLEEP DOES TO GOOD HEALTH

HISTORY tells us that Perseus, the last king of ancient Macedonia, was a very healthy king. But in less than a week after he was taken prisoner by the Romans he was dead. He had been "done to death" by his Roman guards, who would not permit him to sleep. Between poor Perseus and any of a half dozen sufferers from insomnia there is a well-trodden path not always clearly defined perhaps—but there, nevertheless.

It is of course, difficult to put one's finger upon the exact spot where health ends and disease begins from lack of sleep. Yet we can say for certain that loss of sleep produces definite pathological conditions.

The irritability, nervousness, inability to concentrate, progressive weakness, and deficient physical tone due to sleeplessness everybody has seen, at some time or other. Thousands of households know from painful experience that when father comes to breakfast as cross as a bear, whose head is sore both inside and outside—he must have gotten up on the wrong side of the bed. And this is quite likely to be the side he didn't do much sleeping on the night before.

I remember also an old teacher of mathematics who could pick out unerringly even the girls in the class who hadn't gotten their full quota of sleep. He told this by the intensification of our natural stupidity.

But there is something much more serious than these symptoms caused by a deficiency of the proper kind of sleep. Irregular sleep and insufficient sleep, continued over a long enough period of time, tends to produce certain definite conditions that materially impair health and shorten life.

The most common of these is mental and bodily exhaustion. This brings about pallor, muscular debility, irritability and restlessness. It hampers the natural growth and nutrition of the body.

A very common result of this lowering of tone is anemia—which causes the tissues to lose in oxidizing power, and the blood to lose its oxygen-carrying capacity. Also a generally deficient resisting ability.

This makes those who suffer from this debilitated condition more predisposed to contract tuberculosis, or in fact any contagious disease to which they might be exposed. It also renders them more susceptible to the disorders that spring from what Oliver Wendell Holmes called "the sin of not choosing one's grandparents intelligently."

Prolonged sleeplessness occasionally produces intermittent action of the heart. This may, in time, become organic, if long enough continued.

Those who have these heart symptoms experience a sensation of coldness or of faintness that sweeps over them. Sometimes there is a feeling as though one were suddenly plunged into a fog.

This clears up by an effort—by whipping oneself to the task of the moment. But unless the condition that causes these unpleasant heart sensations is corrected, the heart sooner or later develops an irregular action. This brings about true "heart disease," and in hundreds of instances is the actual, contributing cause of death.

Also, every one knows that nothing begets the habit of sleeplessness like sleeplessness itself. The very idea, or fear that the bird of sleep isn't going to tuck it's tired head under it's wing for you that night keeps it from doing so. Thus many cases of extreme in-

somnia, and all the evils that go with it, are begun—and kept up.

A victim of this condition becomes a typical hypochondriac in time—imagining all sorts of dreadful things about himself.

Even when he should be sitting still and resting he is biting his finger nails, or rat-tatting on the table, or fidgeting around with something or other—never at ease for a moment. The energy he wastes in these vitality-squandering activities, if properly harnessed, would run a lathe, or put through a lot of really useful work.

There is no doubt but that one chief pre-disposing factor in the increase of arterio-sclerosis—or hardening of the arteries—in modern life is the increase in sleeplessness. Thousands of men and women, living in the stress and strain of modern business and social conditions, don't get enough of the right kind of sleep.

The effect of this upon the nutrition of the body, and upon the proper metabolism of the food, is a serious contributing factor in the development of this common disease.

Thousands of men, high in the world of science, finance, legislation, or business, have been hustled underground 10 to 30 years before their time—just because they thought hours spent in sleep were wasted,

or because they had forgotten their boyhood's art of sleeping soundly.

Even animals show the influence of sleeplessness in their susceptibility to disease of the heart and blood vessels—as Doctor George W. Crile points out in his fascinating book, "Man, An Adaptive Mechanism."

Dr. Crile shows that high-spirited wild animals in captivity, mettlesome race horses, and the dray horse, fretted and often driven beyond their capacity—are frequently sufferers from heart and blood-vessel disease, while the sleepy, unfettered cow is exempt.

This would seem to indicate that we have been harping a little too busily on that "go to the ant, thou sluggard" string, and that the sooner we reform and take the reflective cow for a model, the longer a good many of us will live.

There is another matter which I do not recall having seen or heard of before, and this is the effect of loss of sleep upon the eyes. We all know the "bright" eyes that shine after a good night's sleep. And we have seen the "heavy" eyes that follow a sleepless vigil.

But perhaps there are not many who stop to think that there is an actual change in the "strength" of the eye—in the ability of it's ciliary muscles to "focus" —dependent upon the restedness or the unrestedness of these eye muscles.

I do not mean by this that sleep will correct a refractive error, or that by getting the proper rest one can dispense with glasses.

But I do believe that the greatest of all treatments for weak eyes, the treatment best calculated to make them strong and efficient and restore them to their normal condition when overstrained is sleep. Nothing in the drug store or in the optical shops does so much good for tired, overworked eyes as sound sleep.

Indeed, I have seen a number of instances lately in which correction of the habit of insomnia relieved a distressing eye strain that did not yield even to refractive treatment with glasses—probably because the actual condition varied so greatly with the restedness or the fatigue of the eye muscles.

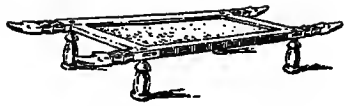
It may be quite probable that the eye muscles of thousands of children and young people might so be strengthened by increasing the hours of sleep of these young folks—or deepening the sleep they manage to secure—that many of them might well dispense with glasses for many years to come.

This, of course, does not imply that where the eyes are structurally defective, lenses are not indicated.

So we know that bad sleep is "bad medicine." It tears down, it "slugs" all the vital processes. It decreases elimination, it increases susceptibility to pain,

it retards healing of all kinds—especially of wounds and it saps courage.

It makes a wreck of an athlete, a "fright" of a beauty, a dunce of a scholar, and a four-o'clock-in-the-morning coward of an eight-o'clock-in-evening hero. I don't remember who said, "God never did a kinder thing for man than to make him sleep when he is sleepy." But whoever did, knew what he was talking about.



*A Bed from the Admiralty Islands.*

CHAPTER XI

# CURING THE INSOMNIAC

THE most dangerous things about insomnia are the remedies used to club it into insensibility. Nine times out of ten insomnia is likely to be something that should not be clubbed. If we could find out what this something else is, and cure it, the insomnia would take care of itself.

To bludgeon an undernourished set of nerves, an irritated digestive or circulatory apparatus, or an oxygen-starved system with "sleeping powders" or "knockout drops" is not only foolish, but actually criminal.

Because an individual has, before retiring, filled his mind with an exciting romance or his stomach with an indigestible meal, or has stimulated his heart and nervous system with too much tea, coffee, tobacco, or alcohol, is no reason he should further poison himself with hypnotics or narcotics. For, be it remembered,

excessive drinking, smoking, eating, reading, or playing increases blood tension in the arteries, and makes the heart beat more rapidly. And anything that makes the heart beat more rapidly around bedtime is good for insomnia, but bad for its victim.

Some reckless optimists there are who contend that insomnia really has no existence save as a figment of an overactive imagination. They cheerfully dispose of it by asserting that an insomniac is merely a pessimist.

But it is now generally conceded that a pessimist is one who has to live with and listen to an optimist. And the optimist who insists that you were asleep, only you didn't know it, or that you awoke to hear the clock toll off the lingering hours, and then like Omar Khayyam's wise men, "to sleep returned," or that even if you didn't sleep for a few weeks or a few months it wouldn't matter anyhow, is partly responsible for your pessimism—if you are an insomniac.

Sleeplessness is a most real and tangible demon to the unfortunate upon whose shoulders it perches. In fact, there is only one thing that is much worse than insomnia, and that is worrying about it. Frequently the worst sufferers from insomnia are the family and friends of the insomniac, who have to listen to the lugubrious tales of his sleeplessness. Staying awake in a comfortable bed for a few hours at a time o' night isn't nearly so dangerous as talking and think-

ing about it all the following day, and filling one's self with the auto-suggestion that the performance is going to be repeated. If one could take insomnia calmly, even thankfully, as affording a splendid opportunity for lying awake and thinking noble thoughts, the insomnia would promptly get disgusted, pack up, and leave for more promising fields.

But we are not so constituted. If we have done one of a thousand things we should not have done, or have left undone one of an equal number of things we should have done, and if we lie awake for a few hours, or even an entire night, as a consequence, we immediately start a free-hand worrying spell for fear we shall repeat the procedure the next night. And so greatly do we dread this that we usually do it.

This is the beginning of what might be called "psychic insomnia," a condition that has no particular reason for existence beyond its initial mental impulse, aided and abetted by an overfertile imagination. Yet many of our most persistent insomniacs got their start in just this way.

And when insomnia gets firmly established what it can't accomplish in the way of running down a nervous system, paralyzing the mental faculties, "taking the tuck" out of a fellow, or spoiling a woman's good looks, isn't worth accomplishing.

The real, genuine, dyed-in-the-wool insomnia has its

origin in a variety of causes. One of these is worry —business, domestic, social, or just plain worry. The cure is ridiculously simple. Merely stop worrying. Most of the philosophers, from Marcus Aurelius to Pastor Wagner,—none of whom probably ever had much to worry about,—have given explicit directions as to methods.

Given sufficient time, the chances are that tired Nature will ultimately reassert itself, drive Carking Care from her perch, and help sleepless ones make up for lost sleep. For finally—and this is an axiom in psychology—the system fails to respond to a stimulus that does not increase in intensity, and the causes of grief and worry usually decrease in power as time elapses.

To have an occasional wakeful night is an evidence of intelligence. Hardly a normal man or woman but will sometimes have experiences that cause a period of wakefulness. Only human clods sleep undisturbed, through every sort of storm and stress. Until the fear of sleeplessness becomes a full-grown phobia, no anxiety need be felt. Insomniphobia (to coin a term), the fear of insomnia, or mere overanxiety to get to sleep, is more to be dreaded than insomnia.

Many insomniacs of a vegetative turn of mind and body lie awake at night because they haven't been sufficiently awake by day. This is also true of those of

sedentary habits of life, whose brains only are awake, while their bodies hibernate in an office chair. Something that will keep these awake when they should be awake would be more likely to make them sleep when they should be asleep than almost any other form of treatment.

Active exercise—any exercise in the alphabet, from Alewife fishing to "doing the Zoo"—will give excellent results in many cases of insomnia. None sleep quite so soundly as those who have earned it by the sweat of their brow.

A brisk but not too fatiguing walk before retiring will sometimes work wonders for either a human sloth or a brain abuser. A good measure of what is appropriate in the way of exercise would be to walk in one direction until one begins to feel tired. Then turn, and walk back the same distance, on the principle that a little too much walking produces just sufficient fatigue for sleeping.

In connection with the subject of exercise, it is curious to note that one may have too much of a good thing. Paradoxical as it may seem, many become sufficiently tired to stay awake, developing insomnia for this reason. The reason for this is that the fatigue poisons resulting from the wearing out of a cell tissue accumulate in the blood stream faster than they can

be oxidized or eliminated, thereby poisoning nerves and brain, and causing irritability and wakefulness.

A warm bath before retiring, a wet pack, a cold cloth at the head or the back, or other measures tending to promote elimination and equalize the circulation, will usually give satisfactory results. For those of sedentary habits who are troubled with cold feet, a hot footbath, or better still a cold footbath, with vigorous friction following it, and the wearing of a warm pair of bed stockings, will often induce sleep.

Fresh air is also valuable in these cases; for, lacking sufficient oxygen, the fatigue poisons are not oxidized in the lungs and exhaled as carbon dioxide. This maintains nerve irritation and restlessness, which are reflected in insomnia.

Or the sleep may be light, the victim of bad air and fatigue poison rising in the morning more tired than when he went to bed. To avoid this open the bedroom windows early in the morning, then forget to close them at night. Strict observance of this omission will cure many of these can't-sleepers.

Perhaps the most common of all causes of insomnia is nervous exhaustion from nerve starvation (neurasthenia), which especially afflicts those who burn the candle of health at both ends. That neurasthenia is an actual disease, insomnia being merely one of its many distressing symptoms, thousands will testify.

However, it is encouraging to know that neurasthenia frequently has an actual physical (or rather pathological) basis somewhere, if we can but discover it.

It may be overwork, especially with exhausting studies, or mental labors practised at night, worry, some digestive or assimilative defect, improper metabolism, imperfect elimination, or any of a hundred other things that interfere with the perfect functioning of the body.

To diagnose the particular pinprick that is responsible for the sleeplessness of neurasthenia frequently demands much time and study on the part of the physician, and much patience on the part of the sufferer. But it's the only way permanently to cure insomnia arising from this cause.

Sometimes an unusual noise keeps one awake. If this persists for a few successive nights it fastens a habit of intense listening upon the would-be sleeper, which effectually prevents his passage across to Slumber Land. Or he may merely be overexcited, or suffering from some mental strain, and the usual gentle noises of the elevated trains or the ambulance bells become an actual racket. Temporarily placing a plug of vaselined cotton in each ear will cut off that source of irritation.

An earthquake is not more disturbing to a normal mortal than is an ordinary fly, buzzing and bumping

against the window pane, to the overexcited nerves of the insomniac. He intensifies the evil by exaggerating the sounds he hears, and by concentrating his attention upon them. Thus will he lie awake half the night listening for a noise he heard the night before. And he is almost as much disturbed by the sounds he doesn't hear as by those he does.

Put not your faith in a sojourn in the country for the cure of noise insomnia, so long as you carry the particular thing with you that causes susceptibility to sounds. To city-bred ears and nerves the country is the noisest place in the world.

The maddening shrill of the crickets and treetoads, the insistent assertion that Katy did or didn't, the full-throated "gurrup" of frogs, the untimely clarion of leather-lunged roosters, and the bawling plaint of a bereft bossy for the bull-calf apple of her eye, conspire to drive a nervous man or woman, unused to these ear-splitting sounds, almost into hysterics.

Still further to demonstrate that "there is no good nor bad but thinking makes it so," we must remember that a certain amount of noise—about what the individual is accustomed to in normal conditions—is seemingly essential to deep slumber. Indeed, it is highly probable that the inability of many of us to sleep soundly in strange surroundings is due to the

fact that we miss the familiar noises, and subconsciously resent the intrusion of unfamiliar ones.

In fact, if there isn't a definite agglomeration of usual sounds upon which the insomnia can focus occasional attention, he invents new ones of his own. And if he has an active imagination in good working order, he can conjure up sufficient incident and accident, and moving tale by field or flood, to keep him awake twenty-five hours out of twenty-four. So it isn't wise to anchor in the middle of a calm lake, or to pitch camp in a desert, unless the thing that is causing the insomnia is left behind.

For those forms of insomnia due to heart disease, chronic congestion or organic disease of the brain, insanity or melancholia, kidney disease, cancer, eye strain, gout, or rheumatism, it is obvious that special medical attention is required. This is also true of any condition that depends upon pain, cough, shortness of breath, excessive sweating, or delirium for keeping its victim awake.

In the sleeplessness of typhoid or other fevers continued nervous or muscular activity completely exhausts the vital forces. It may be absolutely necessary to secure sleep in order to save life. All means that accomplish this result are good means.

One of the most effective methods of inducing sleep, one that can be put into practical application

by almost any intelligent man or woman, is the employment of therapeutic suggestion. It requires no special powers, and but little practice, to become proficient in treating others by this method. The chief requisite is confidence in yourself, supplemented, of course, by a willingness on the part of the patient to try as far as possible to make his mind a blank—to busy the brain over nothing.

Take a position by the side of a comfortably relaxed passenger for Dreamland, back just far enough to cause his eyes a slight strain in the attempt to focus them upon yours. Hold them thus steadily, and repeat in a drowsy, monotonous tone, "You are going to sleep—sound asleep! Your eyelids are getting heavy! You are going to let them close down, and go sound to sleep—sleep—sleep—sound asleep!" Vary this formula from time to time to concentrate attention fully upon the matter in hand.

In the course of five or ten minutes the subject's eyelids will get heavy, and gradually flutter down. He will soon be sound asleep.

Patience and absolute seriousness of purpose are necessary for the success of this experiment. When sleep has been induced it is well to suggest, as though there could be no particle of doubt that the instructions will be literally carried out, "You will sleep soundly all through the night! You will awake rested

and refreshed in the morning! And you will be able to go sound asleep to-morrow night, and the next night, and every night hereafter without the slightest conscious effort!"

There need be no fear that the sleeper will not awaken at the proper time; for this induced sleep passes imperceptibly into natural sleep in a very few minutes. From the induced sleep all that is necessary, in order to awaken, is to say in a little firmer and louder tone of voice, "When I count five you will awake, rested and refreshed." Then begin counting, "One—two—three—four—" pause a moment, to give the subject a better opportunity to focus upon the signal—then sharply, "five. Wake up!"

This method is particularly effective with restless children.

Those of us who have counted innumerable sheep, jumping one by one over the fence of our imagination, will appreciate that the point to be striven for in thus securing sleep is monotony and repetition. And however funny it may seem to those red-blooded brigands who can woo great Nature's second course and chief nourisher in Life's Feast at will, it is no joke to the wideawake mathematician, counting faithfully, and heartily, those ghostly sheep that skip so blithely over the stile.

Now here is a method that doesn't permit so much

latitude for galloping thoughts: it is a form of suggestion that adults can practice upon themselves: The idea is to establish monotony by repeating a progression of numbers, aiding mental concentration by opening and shutting the eyelids at each count. The physical act of opening and closing the lids requires just sufficient effort to keep out extraneous ideas, which mere counting would not accomplish.

Thus, lying quietly relaxed, count "One," at the same time opening and closing the eyelids. Wait a few moments, then count "Two," repeating as before. Presently the lids will become heavier, and refuse to open at the count. The mind, having been thoroughly occupied in counting and "willing" impulses, hasn't harbored a pack of racing thoughts. So before very long Sleep cuddles into its rightful place. This method will well repay the effort.

Another method which I have seen work well is to turn on the right side, nestle the head comfortably into the pillow, and take a full inspiration through the nostrils, drawing as much air in as possible.

Then leave the lungs to their own action, neither forcing nor checking exhalation.

Try to think of the breath—and keep the mind fastened on this thought—as coming through the nostrils in one continuous stream. After a few minutes of this concentration you will no longer be able

to focus the attention on this "streaming breath"—for you'll be sound asleep.

No one can sleep as well with the bright sunlight shining on their face as they can in the dark. If they do sleep as well, it is because of extreme fatigue, and the rest is not as complete as sleeping in the dark.

The same is true of irritation upon the auditory nerve as upon the optic nerve.

Dr. George Starr White, in the seventh edition of his "Lecture Course to Physicians" says:

"Another condition that influences sleep is the magnetic forces of the earth. Judging from all other energies they must affect sleep. That is why some individuals can sleep well if they are grounded to metal, that is, by having a metal wire run crosswise of the bed under the lower sheet, this wire being attached to some grounded metal, such as a gas pipe, water pipe or steam pipe. Some hyper-sensitive individuals can be cured of sleeplessness by this simple procedure.

"This is not imagination, it is not suggestion, because it has often been tried out when the individual did not know that the ground wire had been placed under the lower sheet. The metal may come in contact with the skin, but as a rule it should be put under the sheet and the moisture from the body will make a 'ground'

sufficiently good to keep the individual in a static equilibrium.

"The magnetic energies of the earth have an influence upon sleep in other ways in the direction in which the person sleeps. Some persons will sleep well with the top of the head toward the north or south, while others will sleep better with the head toward the east or west.

"This is not suggestion or imagination. I have seen this work out very often without the persons knowing anything about the points of the compass of the room in which they were sleeping. To further prove that this peculiar phenomenon is not influenced by imagination or suggestion, I have often changed the direction in which infants slept and have cured them of malnutrition without any other change being made in their habits."

Bear in mind also that you can't relax with your knees drawn up. And crossing the legs cramps the muscles and checks the circulation of the blood through the lower limbs. This is also true of clasping the fingers or lying upon the hands.

If one sits beside an insomniac and gently strokes or scratches the backs of his hands and up the forearm in slow monotonous rhythm, it will frequently produce sleep. This is an instance of the soothing

action of zone therapy upon the nerve centres connected with the extremities.

Occasionally it is found that certain physical exercises, calculated to induce fatigue and a normal relaxation of the muscles, are very effective.

Here is one that gives excellent results:

Lie prone in bed, and stretch the body to its utmost by attempting to reach the head and foot boards at the same time. Then raise your head a few inches, and hold it in this position while breathing slowly and deeply. You will soon be very glad to drop it back upon the pillow. Now repeat this exercise with the right foot. When that droops and languishes from fatigue, do the same with the left. Then begin with the head, and do it all over again.

In a few minutes you will have tired and relaxed most of the muscles of the body, and in a surprising number of instances, if the procedure be faithfully followed out, a healthy, natural sleep will follow.

Reading oneself to sleep is a form of autohypnosis that is common and commendable. The book or magazine should be just sufficiently interesting to divert the mind, without arousing a train of thought intense enough to be in itself a cause of wakefulness.

Osteopathy, massage, or even simple rubbing along the spine, friction being applied with the bare hand, have given good results in sleeplessness. In using

friction there should be only moderate pressure at first, becoming still lighter, as nervousness and excitation are relieved, and the patient's slower and more even breathing indicates the relaxation of approaching sleep.

The water cure (hydrotherapy) has many enthusiastic exponents. It is rational, harmless, and definitely helpful in a large percentage of cases. The warm bath, the hot or cold footbath, the wearing of the moist abdominal bandage (the Neptune girdle), and the wet sheet are all excellent.

In most cases of insomnia, unless due to anemia, the proteids should be reduced to a minimum. Meat proteids especially are too stimulating. The diet should be light and easily digested. The principal meal should be eaten at noon; although one should never retire feeling hungry. In fact, a glass of hot milk or a very light lunch just before going to bed is often a good soporific, causing a flow of blood from the brain to the great abdominal blood vessels.

One frequent cause of insomnia, which has been referred to before, but which I cannot too strongly emphasize, is a bed which does not invite perfect relaxation.

If there is any squeak or rattle in a bed—as there is with most wooden beds and with many loosely-con-

structed metal beds—the nerves are startled to semi-activity.

Even with those who are ordinarily sound sleepers there is a muscular start—a "jump"—when the bed creaks, shakes or rattles. It is the old inherited instinct flashing to the brain the message that we are threatened by danger from some source.

If we are "light sleepers" this stimulus, aroused by the shaking of the bed as we turn in our sleep, or by the slip of a spring, shocks the nerves into temporary wakefulness. We may not wake up—but the nerves do. And this is enough to lighten and disturb the sleep and invite distressing or unquieting dreams. Or the nerve irritation may even be sufficiently pronounced to produce wakefulness. And the habit of wakefulness, once established, produces results that are very difficult to overcome.

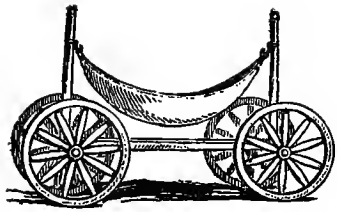
An uncomfortable bed will have the same effect as a squeaky, noisy bed. If the springs are a series of hummocks and valleys that don't fit any part of one's anatomy comfortably, if the mattress is "lumpy" and uneven, sleep is quite likely to be coy, fickle, and hard to win.

These are such obvious things that few people ever think of them. But some of the most successful nerve specialists are now looking into the bed itself for the original, Simon-pure cause of insomnia. And they are

finding it—right there—in a surprising number of instances.

And this sensible procedure is in line with the modern theories of treating causes—not effects—of curing a thing by means of sensible advice,—even though the total consumption of pills and powders suffers terribly thereby.

And, be it again emphasized that anything, except drugs, that will produce sleep is useful and admirable. The salutary effects of a drugless sleep are felt all the next day. The usual "doped" sensation which follows the use of hypnotics—even the most harmless, as bromides and veronal—is entirely lacking. If a comprehensive inspection of your habits, with the correction of the bad ones, doesn't cure your insomnia, you had better lose no time in calling in some one qualified to discover your physical imperfections, and apply the proper cure directly to them. It will be a thousand times better than trying to club your insomnia into insensibility with drugs. "Sleep at any price" is entirely too expensive.



*Anglo-Saxon Bed on Wheels—from illumination in an ancient manuscript*

CHAPTER XII

## "SLEEPING OUT"

SLEEPING out is a fine, healthy occupation, provided one is strong enough to stand it. But unfortunately, instead of being confined to the vigorous and athletic —with sound hearts, rugged circulations, and good, rich blood—the fad is usually practiced by the weak and debilitated, by the tubercular, and by those who lack power of resistance.

Understand, this does not imply that fresh air is not a desirable and indispensable thing, or that the bug-killing and appetite-stimulating effects of oxygen are lightly to be regarded or in the slightest degree disprized.

It simply means that the oxygen one gets out on the front porch or under the bare boughs of the old

elm is not one whit better in quality nor quantity than the oxygen one gets while sleeping in a thoroughly ventilated bed chamber, in a comfortable bed—preferably one he doesn't have to share with some one else.

The abuse of atmosphere is gradually being recognized by the best authorities as one of the most prevalent and pernicious vices of modern medical practice. And while the open-air treatment of the sick—especially of those sick with tuberculosis—has shown splendid and encouraging results, these authorities hold that had the radicalism of ultra enthusiasts only been tempered with a little warm air these results would have been even more encouraging.

All there is of "open air," "rest cure," "forced feeding," "climate chasing" and other hygienic measures for promoting health resolve themselves finally into this: To build more blood corpuscles, that increased amounts of the bacteria-destroying oxygen may be carried to diseased tissues, and to keep the victim in a climate or a condition of living in which he can secure the maximum amount of oxygen.

It is true that educating a race of air-haters as to the life-giving properties of fresh air is possibly the greatest single factor in reducing the mortality from the pallid scourge. It is also true that the 500 open air schools scattered over this country, the 575 sanitariums modeled after the Saranac plan, the 450 dis-

pensaries, with their thousand physicians and 4,000 nurses devoted to the open air treatment of disease, are doing a praiseworthy and useful work.

Sending patients to a climate that permits them to spend a maximum amount of time in the open air is also hopeful.

But these things, splendid in themselves, have confused the real issue. They have been made the "whole thing," whereas they are only a part of the great strategic scheme for overcoming tuberculosis.

The fallacy of a special fresh air climate for tuberculosis is pointed out by state medical associations. Cities and whole districts are passing resolutions trying to control the influx of patients who look to these districts as Meccas of cure. It is a matter of statistics that fully 85 per cent of cases seeking relief west of the Mississippi are fatal.

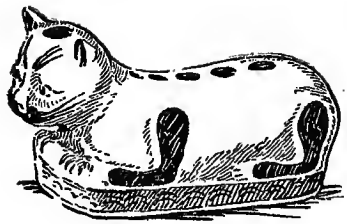
Brown says: "The practice of sending patients to health resorts, with the advice to live outdoors, to exercise freely, and to consult no physicians, is criminal. The best climate for any patient is one where the demand for tissue change best coincides with the patient's powers for response."

The difference of not more that 10 degrees in temperature will frequently work the change between stimulation and exhaustion.

And notwithstanding that great stress is laid upon

the beneficial effects of the dry air of mountainous regions, the truth is that there is less oxygen to a cubic foot of this air than there is at lower levels, and, anyhow, of what use is an "excess of fresh air" anywhere between sea level and mountain top to those whose red corpuscles do not absorb and carry the oxygen?

Every one should have absolutely pure air—all of it he can possibly use during twenty-four hours of every day. But it should be warmed to a temperature bearable by human beings.



*Chinese Head Rest of Porcelain.*

CHAPTER XIII

# THE EVOLUTION OF THE BED

THE first bed was a pile of leaves gathered under the protecting shelter of a ledge, or scooped into a corner of a cave. The intent was the same as applies to the most elaborate and perfect resting place—favoring relaxation while leaving the circulation of the body unimpeded.

It is obvious that when the weight of the body presses upon an unyielding surface the circulation of blood through the parts squeezed against the hard surface is checked. Nutrition is interfered with. Recuperation from fatigue is not so perfect.

As foreheads became less and less oblique man became more and more adept to providing for growing wants. As life and activities evoluted from simple to complex so skill in providing for these grew.

So next we see man using the skins of beasts he had killed to bed down upon. From this he gradually evolved a frame work interlaced with thongs, upon which the skins were spread. Then by degrees the evolution progressed up to the development of those ornate and extravagant sleeping-places of the emperors who infested Rome shortly before the fall of the Roman Empire. The framework of some of these beds or couches was of solid silver, or even of gold, wonderfully carved, and richly ornamented with jewels and semi-precious stones.

The luxury and magnificence of sleeping appointments, however, culminated among the Egyptians. Cleopatra struck 13 in this effort, with her marvelously beautiful silver and ivory couch. On the foot-posts of this luxurious bed were two beautiful cupids, three feet in height, aiming their golden arrows at the sleeper. The richness of the silken draperies and pillows upholstering and decorating the couch furnished the theme for more than a few poetical effusions.

Homer was the first to describe a bed as a piece of furniture to sleep on. He tells about the bed Ulysses made in his own house. There is also another ancient reference to beds in the Book of Esther.

The Biblical reference, however, is probably only to the coarse, stuffed pillows or cushions, thrown or piled in out-of-the-way corners of the room—used for

seats by day and for beds by night, in true Oriental fashion.

In the fullness of time movable beds made of wood, copper and the more precious metals were invented to meet man's expanding wants.

Then came the couch chest—a shallow chest filled with dry moss, reeds, feathers, wool or hair, and covered with skins—a crude bedding arrangement which subsequently developed into the mattress.

The couch chest eventually grew into the bedstead —built into the room like a steamship berth—only wider and more comfortable.

Early in the twelfth century high-post, canopy-top bedsteads came into fashion. These were usually movable and hung with embroidered curtains, so arranged, that if, by chance, any fresh air ever got into these fetid sleeping chambers, the curtains would automatically intercept it before it got near the sleeper.

No wonder our ancestors in the good old times, got full of grace and died young. If they hadn't been very tough and resistent they would have died even younger.

The wealthy nobles of these unhappy times had a very high appreciation of the artistic. But they didn't know much about the hygienic value of a bath. Nor did they know anything about the disease-carrying power of bed-bugs, lice, fleas or ticks.

They knew that these were most uncomfortable sharers of a bed. But they hadn't sense enough to kill them off. For when the attention of their insect boarders became unendurable the nobles and those who had other houses to move into, packed up their toothbrush and extra suit of armor and went to another of their estates to live. They left the old house to "sweeten"—as they called the process of starving out the insect invaders. The poor grinned and bore it as best they might—the whiles they prayed for Winter.

Certain peoples have believed—perhaps for the same reason that some travellers always prefer to sleep in an upper berth—that if one has to climb into bed by the aid of a ladder they get better air.

The Egyptians, Assyrians, and many other ancient races had high bed-steads, into which they climbed to roost by the aid of steps or a young ladder. They had bolsters or pillows, designed to prevent them from falling out and mussing themselves up generally.

Their head-rests were semi-cylindrical, and were often made of stone, wood or metal. It is difficult to understand why they should choose these uncomfortable substances as pillows. They had no need—as had the Japanese, who used a wooden block under their neck to preserve their elaborate coiffure—for these foolish head-rests.

Iron beds first appeared in the eighteenth century in response to a limited demand for a piece of sleeping-equipment less favorable for the harboring of noxious insects. It was one of the truly great and helpful innovations that human beings evolve ever so often.

But, until sanitation became a science, and hygiene a household word, the adoption of the metal bed didn't proceed very fast. In fact, most of us, not much worse than middle age, remember when there was nothing but wooden beds to be had. They fitted together with ramshackle sockets, and were as full of cracks as an egg is of meat.

These rapidly got no better until the rash finally broke out in the folding bed. That spelled their death-knell in most refined homes. Never since that distant day has any bed made of wood and slats, and myriads of cracks and crannies ever darkened the doors of these homes. Nor it never will.

Among a few families the bogy feather-bed—collector of generations of germs, saturator of the emissions of decades of dead and gone ancestors—still holds a place. But this hold is rapidly being pried loose. And soon the old feather-bed of song and story will be as extinct as the dodo.

In most nice, modern homes the things that belong with the featherbed are also being banished from the bed-room.

Sensible people everywhere have given up the foolish practice of trying to sleep in a museum packed full of gimcracks, and loaded to the guards with all forms of dust-gathering, germ-harboring devices.

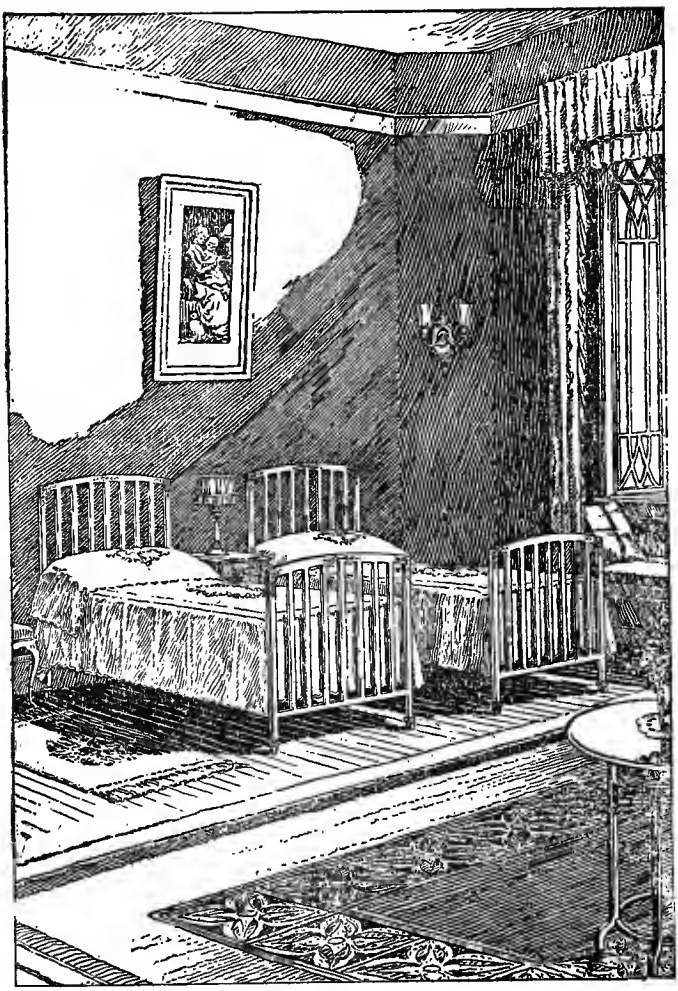
Heavy curtains and thick carpets, lambrequins, pillow shams and fancy bed spreads, doilies, crayon portraits of grandfather and grandmother Standish and Aunt Libby in her wedding-brocade, the spy-glass and sea-urchins that Uncle Tom brought back from the East Indies, what-not stands, and the Lord only knows what other useless, cluttering things, have all been sent to the attic or the junk-heap years ago.

Refined people are coming more and more to demand simplicity and sweet wholesomeness in the bedroom decoration.

They realize that there's nothing quite so clean and fresh and thoroughly healthful as a bed that can be made without inducing an attack of nervous prostration, four walls that can be wiped down, and a floor that can be mopped up without wrecking the place or making it look like one of those May mornings when we were moving in just as the other family was moving out.

And in this same direction of mental progress there is an ever-increasing disposition in the choice of bedroom furniture.

Most people no longer select beds, for instance, be-



*Modern All-Metal Twin Beds—reproduced by permission of the makers, Simmon's Company of Kenosha, Wisconsin.*

cause they are part of a "set" of bed-room furniture, or because they happen to "match."

They are buying artistic beds that harmonize with the decorative scheme. But they also have in mind the utilitarian uses of their sleeping-equipment.

There is only one bed that is absolutely sanitary, safe and sane. This is a well-constructed bed of metal, tight and rigid in the joints, with a spring that retains its plane surface, and a firm yet flexible mattress, devoid of humps, hollows and uneven surfaces.

This is the ideal bed—a bed more sleep-engendering and rest-bringing than any emperor of antiquity ever slept in.

If everybody in the world had such a bed all to himself, and a clear conscience, the sum total of happiness and health among humans would be marvelously increased.

*Fork and Pole Couch of the Chippewa Indians.*

CHAPTER XIV

# SEPARATE BEDS AS HEALTH CONSERVATORS

IN the last decade of the 19th Century, Angelo Mosso, Professor of Physiology in the University of Turin, made a series of observations and experiments.

These experiments dealt with a graphic method of registering the movements of the brain and circulation during sleep. They were made upon a man of 37 years of age, a woman of about the same age, and a child of 12, who had lost a portion of the top of their skulls through various accidents, the seat of the wounds being covered with a soft, pulsating scar.

By a special arrangement Mosso took simultaneous tracings of the pulse at the wrist, the heart beat, the movements of the wall of the chest made by breathing, and the movements and pulsation of the denuded surface of the brain.

By means of the plethysmograph—an instrument of

his own invention, but now in general use by physiologists—Mosso obtained tracings upon carbon paper showing changes in the volume of blood in the hand and forearm. He showed that during sleep there is a diminished amount of blood in the brain, at the same time that the amount of blood in the extremities is increased.

But the most significant feature of Mosso's work developed from the fact that there are frequent adjustments of the blood, even during sleep, resulting from various stimuli.

Thus a strong stimulus to the skin or to a sense organ—but not strong enough to awaken the sleeper—caused a contraction of the blood vessels of the forearm, an increase in the blood pressure, and an increase in the amount of blood in the brain.

On the other hand, if the sleeper was suddenly awakened there was a contraction of the blood vessels in the brain a general rise in pressure, and a quickened flow of blood through the brain.

So sensitive is the system to these influences, even during sleep, that a loudly spoken word, a sound, a touch, the action of light, or any other sense impression changed the system of breathing, caused a contraction of the blood vessels in the arm, increased the general blood pressure, caused an increased flow of blood to

the brain, and quickened the frequency of the heart beat.

All these disturbances, as Professor Mosso points out, "lighten" the sleep, interfere with the building up of tissue, and retard oxidation and all the physiological functions of sleep.

From this it will clearly be seen that the practice of sleeping in separate beds, adopted in most modern households, is one of the most health-bringing reforms humanity has ever instituted since it used to "bed down" in a conglomerate heap on a pile of leaves or skins.

For a cough, a restless move, a touch, a sigh, a fanfare of snores or groans, the mutterings of a dreamer, the twistings and turnings of an insomniac seeking a more promising sleeping position—all interrupt the function of sleep. Therefore restlessness of either of the sleepers is communicated to the other.

It is disturbing enough, indeed, for two persons to sleep even in the same room. Every step or squeak or sound, or even the sensation caused by the presence of another person close by—a sensation usually magnified by the subconscious mind—tends to lighten sleep. But to lie within touching distance is infinitely worse.

And everyone knows how infections—such as colds, sore throat, coughs, grippe—are communicated by sleeping with one so afflicted. There is no quicker or

more effective way to contract any contagious disease than merely to sleep with one who has it.

Also, while it may not actually cause disease, it certainly is most unhygienic and unaesthetic to be obliged to breathe the offensive breath of one who suffers from catarrh, decayed teeth, or stomach disorder.

The single bed also permits one to sleep on either side at will. One who has a bed to himself doesn't have to sleep upon his left side—an uncomfortable position for many fleshy people, and for those with any tendency to heart trouble—in order to avoid breathing the poisonous exhalations of his sleeping partner. And when he gets tired of sleeping on one side he can change to the other at will.

Separate beds also make it possible for each sleeper to gauge the amount of covering according to his individual needs. He uses only what he wants—and no more. Or else all he wants—without giving his partner an unsolicited Turkish bath,—bedclothes to tuck in about one's self at will, or to be cast off without a thought of discomfort to a companion.

The constant exchange of magnetism with one who shares a bed tends also to create apathy and a distaste for contact—and something of the elusive charm and mystery of sex aloofness is brutalized or lost thereby.

For children to sleep with the aged—to whom they constantly lose magnetism and vital force— is a crime

against the child. The facts of such loss are admitted by every competent medical man—the principle has been recognized from time immemorial. The Bible mentions the ancient King David, to whom was given a youth, to supply him with vitality.

Only thirty years ago certain institutions, founded upon those same principles, existed in France. Young girls and boys were supplied to old women and old men as bed-fellows. Almost without exception these young folks lost in vitality—some actually sickening. The evil effects of this strange sale of life-force were so marked that the institutions were finally closed by police order.

This same loss in vitality is responsible for much of the nervousness, irritability and weakness that effects American women—for the reasons just mentioned.

Dr. George Starr White, in the seventh edition of his "Lecture Course For Physicians" brings these facts out very clearly.

He says: "During sleep the psycho-magnetic radiations from the body are greatly reduced—proving again that the psycho-magnetic radiations or magnetic atmosphere of the body are simply a manifestation of energy, voluntary or involuntary. As these magnetic radiations from the body are increased by mental effort, so are they decreased by sleep.

"The more deeply any animal is sleeping, the less energy can be observed in their magnetic atmosphere or radiations.

"Every rate and mode of motion within the body influences a rate and mode of motion emanating from the surface of the body, these emanations being known as the aura, the psycho-magnetic atmosphere, or magnetic radiations. The most prominent of these radiations I have termed auric rays, as they are distinct rays in the auric or magnetic atmosphere. These auric rays can be projected. One individual is influenced by another individual by what some have called the sixth sense, but which in reality is the auric rays—the magnetic atmosphere projected.

"Frequently the physician hears that his patient does not sleep well, that something seems to irritate him. The physician asks if he sleeps with anyone, and perhaps he does. If the physician is informed regarding auric phenomena, he will at once advise the patient to sleep alone. Sometimes even if the patient sleeps alone, but in the same room with someone, he may have to sleep in a different room.

"Patients sometimes say that they cannot sleep if a certain nurse is in the room, but if another nurse is there they sleep well. This is not due to imagination. For in many cases the antagonistic nurse was sent into the room after the patient was asleep, and the patient

would unconsciously begin to move about as if his subconscious condition was irritated by the very emanations from the one that was antagonistic to him. I have often questioned such patients to see why they had this feeling, and almost invariably they say they do not know. They regretted it—but it was a fact, nevertheless.

"As a rule, I should say it is better for people not to sleep together, because if one has a weakness in any part of the body, that weakness seeks to be satisfied. If the sleeper's companion can satisfy that weakness, it is going to be taken, because the law of nature is toward establishing equilibrium. There is no doubt that the auric emanations from one person affects another during sleep as well as during waking hours.

"As for sisters sleeping together, or brothers sleeping together, I believe it is a bad plan, as one is liable to draw from the other—one will be the gainer and the other will be the loser.

"How much of this is due to loss in magnetism and how much to the disturbance caused by restlessness, of course, cannot be definitely stated.

"Another condition I have observed in studying the traits of those who have for years slept together, and that is that one of the individuals completely dominates the other. I have often heard it said of such individuals

that the temperament of the one seemed to have fallen entirely under the control of the other.

"If two individuals are of a similar temperament and both of the same activity, sleeping together is a great detriment, and is bound to make one or the other deteriorate in some way. This is a natural law —a law of opposites attracting each other and likes repelling.

"Taking all things into consideration, the physician should advise his patients to sleep alone. This can be done by having separate beds in the same room or in separate rooms, depending upon their circumstances."

Dr. George Lenox Curtis, of New York, finds also that:

"Stronger or older persons live at the expense of the weaker or younger with whom they may sleep.

"One delicate, nervous child I remember had been treated by a number of physicians, in all sorts of ways. I inquired into her sleeping habits; found out she had slept almost from birth with a big robust mother.

"I ordered the child a room and a bed to itself—no other treatment. Her improvement began from the very first night. The child thrived—grew strong and well—both in nerves and body.

"And this is only one of a dozen cases I have seen—

where vigorous, healthy men have sapped the vitality of frail, delicate women, or where older people have systematically robbed younger sleeping-mates of health and strength."

And, while fortunately such accidents are not frequent, hundreds of instances are known in which mothers, during sleep, have rolled over upon their babe or young child, and smothered it. Such an accident is liable to occur at any time, to any mother who sleeps in the same bed with her child.

So separate beds for every sleeper are as necessary as are separate dishes for every eater. They promote comfort, cleanliness, and the natural delicacy that exists among human beings. Sleep becomes more relaxing, and therefore more reconstructive—next to consciousness itself, the most wonderful and healthful thing in life.

No fervid coloring of poetic rhapsody can ever paint the virtues of sleep in over-brilliant hues. No encomiums of shrewd-eyed science can exaggerate the soothing touch of this soft nurse of Nature. No adept, delving into the esoteric mysteries of the mind, can plumb the profound depths of this most familiar and most marvelous of mysteries.

And yet nightly, emperor and peasant, scholar and babe, sinner and saint, yield themselves to the soft embrace of this universal mother, and close their eyes

confidingly under the gray shelter of her outspread wing.

And the most tender, the most beautiful, the most trusting thought in the minds of all the children of men is and ever shall be "He giveth His beloved sleep."

FINIS.